How Public-Private Partnerships and Islam are related to Student Achievement:

A Case Study of Pakistan

Maham Mela

Submitted in partial fulfillment of the
requirements for the degree of
Doctor of Philosophy
under the Executive Committee
of the Graduate School of Arts and Sciences

COLUMBIA UNIVERSITY

2012

© 2012
Maham Mela
All rights reserved

ABSTRACT

How Public-Private Partnerships and Islam are related to Student Achievement:
A Case Study of Pakistan

Maham Mela

This dissertation tackles two research questions through two research methods – how public, private, and private and public-private partnership schools relate to student achievement (quantitative); and how Islam relates to parental educational decision making for school choice (qualitative). These questions are partly driven by the increase in public-private partnerships in Punjab, Pakistan, and by the recent worldwide focus on Islam. Quantitative findings show that when the educational outcome is educational quality measured by test scores, public-private partnership schools are related to a greater increase in student test scores than are private schools, and 5^{th} grade test scores show greater dependence on school type than 8^{th} grade test scores. Public-private partnerships can be positively related to test scores potentially because of their unobservable institutional characteristics. Qualitative analysis findings show that the ideal school type for a representative sample of parents incorporates both "secular" and religious components in order to produce a second educational outcome - student ethics and civic identity. Combining answers to both research questions shows that both top-to-bottom interaction between the government and schools, and bottom-to-top interaction between parents and schools are important for informing education policy that aims to increase educational quality while also catering towards parental preferences. However, all established private and social goals of education – including efficiency, equity, school choice, and social cohesion – as well as cost considerations need to be further researched before deciding if and how to formulate a large scale public-private partnership policy.

Table of Contents

List of Tables

List of Figures

Glossary

Union council – a political division consisting of a few villages

Tehsil – a political division consisting of multiple union councils

District – a political division consisting of multiple tehsils

Markaz – an exam center for multiple union councils

FAS – Foundation Assisted Schools

PEF – Punjab Education Foundation

PPP – Public-private partnership

Deen – faith/religion

Prophet – the final messenger of God Muslims believe in

Madrassa – place of learning

Qur'an – Muslims' Holy Book

Taleem - education

Acknowledgments

Although this last part of the dissertation is one of the most interesting for me to write, it is not necessarily the easiest because it is difficult to include 28 years of my life in a few lines. Maybe this, and the sense of finality, is why most students leave it for the end. Of course I would like to thank everyone who participated in my life and gave me my experiences – both experiences I enjoyed and those I learnt from. However, the person who comes foremost to my mind is my father. Knowingly or unknowingly, he affected not only what I learnt, but also how I learnt it. In all aspects of life but most importantly in learning how to try my hardest to reach my potential (I'm still trying Abbu!), uphold my principles and integrity, and have high yet achievable aims in life.

Mama, thank you is not a big enough word for you. In all respects. I don't even know how to articulate how I feel and think about you and in what ways you have affected and inspired me. I know this will make you more happy than anyone else even though you've attended all my previous graduations and have to attend this one too.

Umer, Saalika, and the rest of my family and friends who made fun of me for being such a nerd – you don't actually know it but you made me all the more determined to accomplish as much as I possibly could. Sorry for not listening to you. Umer and Saalika especially – thank you for allowing me to vent on you and for the help, you definitely proved yourselves to be good younger siblings. I wish you both all the success and happiness in life inshaAllah.

This was before I became a masochist and enrolled in a PhD program, and then actually enjoyed the torture. During my program, the most important people were my professors and advisors who were so helpful and encouraging in everything and yet taught to re-evaluate what I

thought. I am not just saying this, I really mean it. Professors Henry Levin, Myra Strober, Martin Carnoy, and Monisha Bajaj and everyone else starting from my undergraduate life – I never called you by your first names because I guess I'm old-fashioned but I also felt that teachers command a certain respect and this was one way in which I showed my respect. Thank you also for allowing me to meet your families. Amita, Radhika, and Amrit – what should I say? Everyone at Teachers College and Columbia University plus my program friends and classmates – I learnt from all of you. And again, I mean it.

I can never repay the sacrifices that some people made in order for me to attend my classes and write my dissertation. My husband – I'm sorry the wedding got delayed because of me. Thank you for being so supportive throughout, even when I had to be away for long periods of time. And don't worry, you were always a pleasant distraction when you visited. My son – you're too small to realize it but your mommy ignored you a lot during your first year of life. Except for the reading and learning times we shared in the morning. But I did fill out your baby book regularly and made sure you dressed everyday like a tiny version of a preppy law school student. You should pray that I don't test all my theories of parenting on you.

The program planners and directors at all the government departments I visited, especially Sohail Raza. Thank you so very much for providing me with data readily and pointing me towards the right sources. This dissertation would not have been possible with you.

And lastly but very significantly – my laptopS and my hard-driveS (and other people's laptops I hogged just to make sure I had 10 backups of 10 years of my life) for not crashing on me. I really appreciate it.

Chapter 1 – Introduction

This dissertation is an exploratory study of the relationship between student achievement, school type focusing on public-private partnerships, and Islam in Pakistan. The purpose of the first chapter is to present the background of public, private, and public-private partnerships (PPPs) in Pakistan's education context and discuss why it is important to study them. Related to this is the discussion of why studying Islam as a religion with regards to PPPs and education is also significant. Broadly speaking, this dissertation spans two levels of interaction – one between the government and schools that join to form public-private partnerships; and the second between schools and parents who choose schools for their child(ren). The ultimate purpose of the dissertation is to inform policy through combining the analyses of these two levels of interaction. This can allow the government to discern the type of education parents prefer for their children, and can then potentially choose to support the school type (mainly public, private, or PPP) that can not only best meet those parental preferences, but also fulfills the government's own educational goals (educational quality, equity etc.).

This chapter is organized as follows: the first section in this chapter provides the introduction and significance of this dissertation's topic. The second section defines some terms including institutions, governance, and culture since they will later be used as concepts in examining the relationship between PPPs, Islam, and educational outcomes. The third section of this chapter presents a description of the current education system in Pakistan and its challenges, while the last section discusses potential solutions to these challenges especially those espoused by the World Bank.

1.1 - Introduction and Significance

The objective of this dissertation is to examine school types, especially public-private partnerships (PPPs), in an educational context, specifically in Pakistan. As their name suggests, PPPs consist of both public (usually associated with the government) and private (usually associated with market forces) sectors. Studying PPPs and their implications for educational achievement can have worldwide implications. Among the most recent trends in PPPs in education, Patrinos et al. (2009) identify one where Muslim majority countries, such as Pakistan and Egypt, are establishing various types of PPPs in their primary and secondary education systems. This is possible especially because the World Bank funds and supports PPPs as a solution for low educational quantity and quality (Patrinos et al., 2009). Moreover, the disastrous events and worldwide consequences of especially 9/11 and the Iraq war have put Muslim countries and Islam in general under the scrutiny of media, foreign governments, and increasingly, academics. Therefore, from an academic and policy perspective, combining questions about PPPs in education with questions about Muslim majority societies is imperative in understanding and affecting development oriented educational change in these contexts. For instance, how can Muslim majority countries without formal PPPs in education learn from Muslim countries that do have them?

Such an understanding will contribute towards two scant but growing bodies of literature. One, are PPPs associated with higher student achievement and hence higher individual, economic, and societal development?[1] There have been studies that say yes (e.g. Lockheed &

[1] There is conflicting evidence for a causal relationship between student achievement and earnings (e.g. Card & Krueger, 1992). As described later, development is also not a straightforward term and can have different meanings in different contexts.

Jimenez, 1996) and others that say no or not significantly (e.g. Carnoy & McEwan, 2001). Two, what is the relationship between Islam and education? Some recent examples of the second body of literature include Krueger, 2007; Goodwin, 2006; and Hefner & Zaman, 2007. However, the interest in religion and education in Muslim majority societies has so far tended to focus on madrassas (Andrabi, Das, Khwaja & Zajonc, 2006; Bergen & Pandey, 2005) and has not extended deeply into the "mainstream" and/or parallel[2] education systems, which are increasingly including PPPs in primary and secondary education.[3] Mir (2001) touches on this point when, in a conference organized by the Brookings Institution, she raised a question about how and to what extent Muslims are involved in education policy making in Pakistan. In other words, she is implying questions about preferences of education consumers – primarily parents and students – being included in education policy. Moreover, Ameli, Azam, and Merali (2005) discuss how religion is marginalized in debates regarding globalization and education, which is surprising considering that religion is a player whose main aim is probably not economic growth. This dissertation attempts to reach a balance in dealing with the economics of PPPs as well as with discussing the role of religion in educational choice at a grass-root level, thus contributing towards research and policy literature on mainstream education.

This dissertation is also significant because as Shafiq (2010) argues, much of the interest on Islam and education has remained at a macro level and that there is a need to conduct more micro level quantitative as well as qualitative research on the topic in Muslim majority countries.

---

[2] For instance, Saudi Arabia contains various different types of educational institutions – public, private, religious, and even schools based on certain ethnicities (Ministry of Education, 2009).

[3] One exception to no religion in mainstream education is an emerging type of schooling institution that combines "secular" and "Islamic" education. This is considered later in this dissertation.

Since PPPs in education can lead to parent-school relationships that are necessary for both the success of the PPP (Levin, 1999) and increase in student achievement and competitiveness for the labor market, these parent and other micro level relationships can provide ground for qualitative research.[4] In addition to quantitative analysis in this dissertation, I collect qualitative data on attitudes towards educational outcomes, hence using mixed methods research in examining the relationship between government policy (public, private, and PPPs), religion, and educational outcomes in Pakistan (e.g. student achievement). Although more complicated than choosing a single research method, using mixed methods has the advantage of providing more comprehensive and accurate results especially since PPPs relate to social interaction among multiple stakeholders (Manski, 2000). It is also important to qualitatively study religion in education because it is uncertain whether the higher net scholastic achievement of private government-dependent schools also corresponds to non-scholastic achievement, such as religious and moral attitudes of students (Dronkers and Robert, 2008). This question is especially difficult to answer through quantitative research because education data in Pakistan do not differentiate between religious and secular private schools. Thus, a qualitative examination of the role religion plays in students' educational choice and outcome(s) beyond test scores is significant.

Therefore, overall in this exploratory study, I draw mainly on institutional and economic literature (especially on PPPs) to place religion and education as mechanisms for development (for instance, Barro &McLeary, 2003; Baker & LeTendre, 2005; Carnoy et al., 2005, 2007; Guiso et al., 2004; Shah et al., 2004; Wiseman & Baker, 2006). Although traditionally defined development itself is the not the focus of this dissertation, such literature is especially useful for

[4] Changes in behavior and expectations can also be studied in more depth under behavioral sciences including economics.

countries that have yet to meet their Millennium Development Goals including Pakistan, (Patrinos et al., 2009).[5] Chapter 2 discusses research and empirical literature in more detail.

One reason for choosing this dissertation's topic is based on my past research. My Master's academic research has examined the relationship between institutions and educational attainment (measured by net enrollment rates) at a cross-sectional country level. Additionally, a preliminary pilot study before this dissertation examined general attitudes towards religion in education at a grass-root level in Punjab, Pakistan. One of the main findings of my Master's research was that rule of law is significant in determining a country's educational attainment. Complementing this finding, Engel, Fischer, and Galetovic (2009) argue that "lack of rule of law alters the choice between conventional provision and PPPs in favor of the former" (p. ii) because short term public provision is more suitable than a long term PPP contract that can be more expensive and inefficient. The pilot study showed that there are ambivalent opinions about if and how religion should be part of a country's education system. In this sense, evaluating specific PPP programs with a specific institutional context, such as the Punjab province in Pakistan, can bring forth differences in institutions, public versus private provision, suitability of PPPs, and attitudes towards religion in education.

My doctoral dissertation expands upon both these my Master's research and pilot study in six significant ways: 1) it uses educational achievement rather than education enrollment data (i.e. roughly translates into educational quality versus education quantity); 2) it conducts a more micro-level analysis both quantitatively and qualitatively by examining schools and individuals

[5] PPPs seem especially important in Pakistan because other government reforms, such as the Punjab Education Sector Reform Program (2003-present) encouraged by the World Bank, whose policies included cash subsidies for girls and free textbooks, had less than desired effects on improving educational attainment (Program Monitoring and Implementation Unity (PMIU), 2011).

rather than countries; 3) it looks in depth at a specific program in Pakistan, which is a country that is under-researched in education despite having lower literacy rates and relatively new PPP policies than its neighboring countries[6]; 4) it looks at specific parental educational making decisions to see if religion plays a role in their school choice;[7] and 5) it spans two levels of interactions – policy and grass-root.

Based on the significance of the research topic I would like to explore PPPs with relation to government policy as well as parental educational decision making. Therefore, my two research questions are:

- 1) How are different school types – public, private, and public private partnership schools - related to student achievement in primary and middle[8] education levels in Pakistan?
- 2) How does Islam matter for school choice and educational decision making?

This chapter next describes some significant terms and concepts (a few of which have already been mentioned, such as institutions) in order to situate the dissertation's analysis of PPPs and religion theoretically and empirically.

[6] This is a general trend although there are exceptions. For instance, Barrera-Osorio and Raju (2011) just recently published a study on the Foundation Assisted Schools Program in Pakistan.

[7] Easterly expands on the significance of the specific versus general, especially as shown by some unsuccessful World Bank education privatization strategies that it attempted to implement across all developing countries (Easterly, 2001).

[8] Middle level of education refers to up till 8th grade.

1.2 - Definitions

Before moving onto a description of Pakistan's education system and one of its public-private partnership programs, it is important to briefly define this central term itself - public-private partnership (PPP). Grimsey and Lewis (2005) argue that there is no single definition of a PPP although PPPs involve at least one government or public party whereas the rest can be one or multiple private entities. According to Savas (2005), the term PPP is broadly "malleable as a form of privatization" (Savas, 2005, p. 1). This malleability also makes the term less controversial for those who ideologically oppose privatization although the definition of privatization itself depends on which country is involved (Grimsey & Lewis, 2005). For instance, in the U.S., privatization can refer to any shift of providing public services from the public to the private sector whereas in the United Kingdom, privatization refers to a clear transfer of the public asset to private ownership (Grimsey & Lewis, 2005). Savas (2005) claims that PPPs present an example of the government delegating its tasks to the private sector whether it does so by providing funding to private service providers or by outsourcing the delivery of public services and goods. Typically, PPPs have been used for large construction projects, such as roads, airports, power plants, and bridges but more recently, other projects, such as schools and prisons, have also been undertaken by the private sector. Traditional PPPs are usually long term (20-99 years) and cover the construction and sometimes operation of the construction and service delivery projects. Overall, PPPs have been used as a means of governance and public management while theoretically including "market principles" of efficiency and utility (Savas, 2005, p. 15).

Another important concept in this dissertation is institutions, which is closely related to how PPPs are defined and used.[9] Following Wiseman and Baker (2006), I divide the definition of institutions into governance and culture to facilitate analysis. Governance has recently become a complex word and concept (Stoker, 1998). This is partly because its definition, theory, and methods can be derived from many fields: institutional economics, international relations, organizational studies, development studies, political science, public administration, and Foucauldian-inspired theory (Stoker, 1998). Sometimes governance is used rhetorically in place of the word government and public administration tools (for instance, in Osborne & Gaebler, 1992) whereas at other times it is used as a framework to organize concepts (Judge et al., 1995). Shah et al. (2004) explain "'governance' as the traditions and institutions by which authority in a country is exercised—including the process by which governments are selected, monitored and replaced, the capacity of the government to effectively formulate and implement sound policies, and the respect of citizens and the state for the institutions that govern economic and social interactions among them" (Shah et al., 2004, p. 2). This definition of governance has the advantage of being comprehensive in capturing the interaction between the government and the public, as well as the formation and implementation of policies (for instance, what is publicly and privately managed in education finance and management, which is one of the central concerns of this study). In other words, the outputs of both governance and government are similar, and the difference in their definitions rests

[9] Institutions also form a part of social capital of a community or nation (Serageldin & Grootaert, 1997; Edwards, Franklin, & Holland, 2003; Lin, 1999; Carroll, 2001; Woolcock, 2001; Ferguson, 2004; Fukuyama, 2002; Carnoy, 2005, 2007).

in the processes for creating "conditions for ordered rule and collective action" (Stoker, 1998, p. 17).[10]

Implementation-wise, Stoker (1998) puts forth five main complementary propositions about governance and how it can be conceived conceptually and practically. They are as follows: a) a complex set of institutions and actors that are drawn from but also go beyond the government; b) governance recognizes the boundaries and responsibilities for tackling social and economic issues; c) governance identifies the power dependence involved in relationships between institutions in collective action; d) governance is about autonomous self-governing of various actors and stakeholders; and e) governance recognizes the authority to complete tasks that do not depend on the government's authority.

In terms of PPPs, the first and second propositions are relevant in identifying the purpose and structure of PPPs because these propositions deal with the inclusion of the private sector in tasks that are usually perceived to be the government's responsibility – providing primary and secondary education. Inclusion of the private sector comes with certain regulatory mechanisms imposed by the government, which means that private schools have to ensure that they meet certain requirements even if the government is not involved in the micro-management of school operations (propositions three, four, and five). In this sense, the efficiency of PPPs in providing primary and secondary education can be seen as a process of governance.

However, in this dissertation, institutions are used to refer to more than just efficiency in providing education (Stoker, 1998). For instance, this dissertation also examines how educational

[10] Stoker (1998) defines government as "formal institutions of the state and their monopoly of legitimate coercive power…[including] its ability to make decisions and its capacity to enforce them" (Stoker, 1998, p. 17).

schooling decision making being related to religion can be interpreted as being related to cultural institutions. Cultural institutions can be defined as "those customary beliefs, values, and social constraints that ethnic, religious, and social groups transmit fairly unchanged from generation to generation" (Guiso, Sapienza, & Zingales, 2005). Significantly, culture can affect a country's social institutions by inculcating certain values in its people (Guiso, Sapienza, & Zingales, 2005). Guiso et al. (2005) outline two major mechanisms for value production – education and religion. While both mechanisms transmit cultural preferences, religion also seems to affect individual attitudes that frame other institutions, such as tolerance, observing the law, and paying taxes. Further, La Porta et al. (1998) use religion as a proxy for culture to present evidence from cultural theories of institutions, which claim that countries that are predominantly Catholic or Muslim have significantly inferior institutions compared to other countries. Landes (1998) has argued that "Catholic and Muslim countries in particular have acquired cultures of intolerance, xenophobia, and closed-mindedness that retarded their development" (La Porta et al., 1998, p. 14). According to Knack and Keefer (1997), there is a high chance that low income Catholic and Muslim countries have low levels of social capital that leads to poor economic performance, especially if autocratic leaders instill lower levels of trust in a country's governance and cultural institutions.

On a more positive note, Barro and McLeary (2003) suggest that ideas of hell and heaven in religion act as incentives for honest behavior. Moreover, religious institutions, such as churches for Christians and mosques for Muslims, can create social capital and affect social institutions (Barro & McLeary, 2003), which in turn can influence the kind of education parents prefer and choose for their children. In other words, in this dissertation, religion is used as a component of culture in studying its relationship with parental schooling choice and decision

making. Although reverse causality is possible between culture and governance (with culture leading to corruption in governance, and vice versa), this can be addressed by using religion as a proxy for culture, since religion does not usually change over a lifetime and will therefore probably not affect governance.

Since this dissertation seeks to examine the relationship between educational outcomes, and governance and culture with respect to school type in a Muslim majority country, an important question emerges of whether or not Islam (and its teachings) itself as a religious, political, social, and economic institution is associated with this relationship. Haqqani (2002) argues that schools teaching Islam (called madrassas) to children form an important part of the educational institutions in Muslim countries today although these madrassas also teach a diverse list of other sciences and humanities. Since it is not clear to what extent Islamic education is stressed in madrassas compared to other schools, it is difficult to infer that Islam as a religion and culture is the reason for low educational attainment in Muslim countries versus non-Muslim countries. Pink (2003) showed that although religion features to a large extent in Egyptian education, it is used to stress overcoming religious differences between Muslims and Christians for overarching national patriotism and social cohesion. This implies that Islam's relationship with culture and educational outcomes depends on the context. In this dissertation, although I do not look at cross-sectional country level data about religion and development, I examine religion and school choice in education at a micro grass-root level within a Muslim majority country - Pakistan.

Having defined major terms, the next sections broadly describe Pakistan's overall context as well as its mainstream education system, its challenges, and potential solutions in order to

situate the analysis of PPPs (example of governance) and in later chapters, of religion (example of culture) in/and education.

1.3 – Pakistan's Context

First categorized by the World Bank in Asia and now in the Middle East and North Africa region (World Bank, 2012), the Islamic Republic of Pakistan is a country bordering with India, China, Afghanistan, Iran, and the Arabia Sea. Pakistan has four provinces: Khyber Pakhtunkhwa (formerly North West Frontier Province), Sindh, Punjab, and Balochistan. Punjab is the second largest province area-wise and the largest province population-wise (with more than 60% of the country's population). The 1998 census showed that total population was about 132 million although recent figures have shown that total population is about 170 million (Government of Pakistan, 2011). 96% of the population is Muslim (76% Sunni and 20% Shia) and 5% consists of all other religious groups including Christians, Sikhs, Hindus, and Jains. Ethnically, Punjabis form the majority (45%; CIA World Factbook, 2012; Government of Pakistan, 2011). Pakistan's major cities include Karachi, Lahore, and Islamabad where Lahore (with a population of about 7 million) is also the source of my qualitative data geographical sample. In Pakistan overall, 36% of the population is urban (CIA World Factbook, 2010). In Punjab at least, the urban-rural divide in terms of educational institutions is similar to the population divide, which means about one third of Punjab's schools are urban (Punjab Department of Education, 2012).

Economic facts can help to situate education in the context of whether or not higher earnings are related to higher education (related to human capital theory; e.g. Card & Krueger,

1992). It is clear from Pakistan's data that low education occurs alongside relatively low economic growth and low GDP per capita (compared to for instance, India). The country has a primarily agricultural economy mostly based on wheat, cotton, sugar, rice, fruits etc. Although the agricultural sector has recently had a decreasing growth rate (Pakistan Economic Survey, 2008), the total economy has grown at an average rate of 6.6 percent per year over the past five years (before 2008). During the six years before 2008, GDP increased by 4.5% per year and GDP per capita increased by 13.5% per year ($586 in 2002-03 to $1085 in 2007-08). The official unemployment rate was 5.3% in 2006-07 (Pakistan Economic Survey, 2008). In 2011, multiple-dimensioned poverty (low income, health, fundamental freedom of action, resistance to natural disasters etc.) stood at around 50% of the population (United Nations Human Development Report, 2011). Expenditure-wise, education and health seem to have two of the smallest shares in GDP – 2.7[11] and 2.6% in 2009 (Pakistan Economic Survey, 2009) versus about 3.1% on education in India in 2006 (CIA World Factbook, 2012). Therefore, low earnings and low education (education statistics are described in more detail in the next section) are occurring simultaneously with or without any correlation.

Structure-wise, Pakistan is a Parliamentary democracy. The Parliament consists of two houses – the Senate (upper house), and the National Assembly (lower house). The 100-member Senate is chosen by the President with the Prime Minister's suggestions (Government of Pakistan, 2012) while the 342-member National Assembly is chosen through an electoral process. Below them are the provincial assemblies whose members are also chosen through an electoral process. At the federal level, there are 37 ministries including one for privatization but

[11] This is 142nd world rankings of descending education expenditure (CIA World Factbook, 2012).

interestingly, not for education since education provision is delegated mostly to the provinces or is included under the broader "development" framework. The federal government often decides budget allocation and country-wide policies while provincial governments often decide implementation of policies and arranges the micro-management framework. An example would be the various departments and sub-departments under the Ministry of Education that collect data, administer standardize tests, decides teacher salaries etc. Education provision and structure in Pakistan is described in more detail below.

1.4 - Education System – Structure, Challenges, and Possible solutions

According to Burki (2001), there are four phases of Pakistan's education system, each of which translates into four main aspects of the education system. The first phase began in 1972 when educational institutions were nationalized leading to a permanent expansion of public education. The second phase in Pakistan's education politicized universities and colleges when Zulfiqar Ali Bhutto wanted to gain support for his political party. This helped in the expansion of another component of Pakistan's education system – the madrassas[12]. Graduates of madrassas can mostly teach only in Islam-related institutions, such as mosques or other madrassas. Another alternative is to join jihadi groups, which are gaining extensive media attention worldwide.

The third phase of Pakistan's education system incorporated Islam into mainstream education more concretely by changing the school curricula. This occurred during the 1980s under General Zia-ul-Haq and foreign investors (who also expanded madrassas). This part of the

[12] Briefly, madrassas are schools that focus on Qur'an and Islamic education. "Jihad" literally means struggle but Jihadi groups now usually refer to groups of religious extremists.

education system caters to approximately a million people in private schools, colleges, and universities. This sector has also developed links with foreign universities.

The 1990s saw the fourth phase – investment by foreign donors and institutions through policies such as the World Bank's Social Action Program.[13] This investment led to the formation of institutions that provided training for various skills - health sciences, business management, accounting, banking, finance, and information technology. This phase carried on into the next decade with even more international involvement, for instance, through the Millennium Development Goals (MDGs). MDGs require all participating countries to have universal primary education. This has been the driving force in Pakistan for many government policies aided by the World Bank regarding education quantity and quality. These policies are implemented at both national and provincial levels. The structure of Pakistan's education system is described below.

1.4.1 - Structure of Pakistan's Education System

Education is divided mainly into national and provincial levels. Higher education and cultural centers are mostly the prerogative of the national Ministry of Education (MOE) while school level education falls mostly under the authority of the provincial education departments. This is partly evident from there being no federal Ministry of Education. Data gathering and information disbursement often occurs at the national level, such as in the Academy of Educational Planning and Management (AEPAM) and National Education Assessment System (NEAS) under the Ministry of Education although much of this data is collected and provided by provincial education bodies. National and provincial ministries of education are related

[13] Burki (2001) realizes that there is potential disagreement among policy makers with his claim that the last phase led to further politicization of Pakistan's education system.

mainly through finance where the national government disburses both conditional and unconditional funds to the provincial governments. Management is also somewhat related especially since some national level government bodies oversee higher educational institutes (for example, National College of Arts in Punjab). However, finance has more common ground between national and provincial education bodies than management (MOE, 2011).

It is also important to discuss Punjab's system of education because this dissertation focuses on one province's schools. At a higher management level, Punjab's Education Department is responsible for standardized examinations in grades 10 and 12 through its Boards of Intermediate and Secondary Education in multiple districts. At a lower management level, one of the most relevant departments under the government of the Punjab is the School Education Department (SED), which can influence trends in enrollment and percentage of private schools etc. Besides determining how schools function, SED also runs several autonomous bodies including Punjab Examination Commission (PEC) and Punjab Education Foundation (PEF), both of which are data sources in this dissertation. Other autonomous bodies include Punjab Teachers Foundation, Punjab Textbook Board, and the Punjab Danish schools and Centers of Excellence. In addition to its regular monitoring and evaluation efforts for student performance[14], teacher attendance, free textbooks, and online information database, SED's acts as a regulatory body for Punjab's private sector schools. Through SED, the Government of Punjab (i.e. Punjab's Chief Minister) has recently formed a school reform roadmap, which includes expanding education quantity and quality, teacher training, and data collection. The Punjab Education Department also began the Punjab Education Sector Reform Program (PESRP) through which the

[14]Student performance is measured through Punjab Education Assessment System (PEAS), which is the equivalent of NEAS at the national level. This is in addition to PEC's standardized tests for grades 5 and 8.

government attempted to implement education expansion policies, such as cash subsidies for girls and free textbooks in public schools. Significantly, PESRP also entailed the establishment of an information warehouse called the Program for Monitoring and Implementation Unit (PMIU), which has also been a source of quantitative data for this dissertation.

According to Punjab Education Department' budget allocations, resources are divided and distributed based on programs (for instance, PEF and PEC). Most of the budget seems to target physical infrastructure and facilities with some emphasis on teacher training and evaluation (Punjab MOE, 2011). It seems as if management-wise, several functions and resources of education government bodies overlap; for instance, PEAS (Punjab Education Assessment System) and PEC perform similar functions of standardized testing but operate as two separate entities. Within this context, what are some of the challenges facing Pakistan's educational attainment and achievement?

1.4.2 - Challenges to Pakistan's Education System

A large challenge faced by Pakistan's Education System is that it is short of achieving its Millennium Development Goals (MDGs), one of which is ensuring universal primary education. This is despite an increase from 58 to 67 percent in male literacy and an increase from 32 to 42 percent in female literacy from 2001 to 2006. This increase is, at least partly, because of the increase in private education. Reasons for not achieving its MDGs can be the numerous problems with education in Pakistan (e.g. Malik, 2007, 2009; Memon, 2007; Burki, 2001, 2005 etc.). These problems include "insufficient financial input, low levels of efficiency for implementation of programs, and poor quality of management, monitoring, supervision and

teaching" (Memon, 2007, p. 48) as well as substandard curricula, dropouts, dual (English and Urdu) medium of instruction at the secondary level of education, cheating in testing and examinations, and overcrowded classrooms (Economic Survey of Pakistan, 2002). These problems both arise from and result in poor school capacity (as well as low enrollment) and low quality of education.

School Capacity

Poor school capacity refers to inability to enroll more students as well as poor school inputs and resources. Since most education problems in Pakistan are inter-related, school capacity and student achievement are especially important to study because not only are they the result of educational problems, but they can also determine enrollment (for instance, because of repetition and dropouts as a result of low achievement) at each education level. Generally, some theories attempt to link the dropout problem with student achievement (e.g., Coleman, 1988; Newmann et al., 1992; Ogbu, 1992; Rumberger, 2011)[15],[16]. Studying school capacity at the primary level is understandably significant because although Pakistan attempts to reach the universal primary education MDG, it still experiences high dropout rates throughout its primary school

[15] For the dropout problem itself, there are various theories and conceptual frameworks derived from various disciplines and fields (such as economics, anthropology, psychology, and sociology) that attempt to explain the dropout problem (e.g., Finn, 1989;Wehlage et al., 1989).

[16] For instance, economics of education is a field that combines various theories and it has several studies on enrollment and student achievement, both of which are related to dropouts. One such study examined the effect of charter schools (an example of a PPP according to the definition of PPPs) on private school enrollment where establishing charter schools seemed to reduce private school enrollment in non-religious and non-Catholic schools in the U.S. (Chakrabarti & Roy, 2010). Although there is a different dependent variable in this study – enrollment – than the one I use – student achievement - it is useful to examine this study because it compares PPPs with private education, which is a less examined research area in developing countries, such as Pakistan. I attempt to mitigate the lack of research in this area in Pakistan through this dissertation.

years. For instance, 20 percent of enrolled students drop out from Kindergarten to Class 1 while 40 percent of primary school students drop out by the time they reach Class 4 (Malik, 2009). Dropping out makes it difficult to reap the benefits of primary and secondary enrollment both for private and social rates of return although the rates of return (especially private rates in terms of earnings) for all countries are considered to be lower now than they were before (Psacharopoulos & Woodhall, 1985; Psacharopoulos & Patrinos, 2004).[17]

School capacity is related to the dropout rate so that both can determine the employment level of a country. For instance, the 1998 unemployment rate for high school dropouts was 75 percent higher than for high school graduates in the U.S. (U.S. Department of Education, National Center for Education Statistics, 2000). Even if high school dropouts were employed, they earned a much lower salary than their graduate counterparts.[18] Therefore, school capacity as related to dropouts can have implications for not just educational attainment, but also for future returns to education.

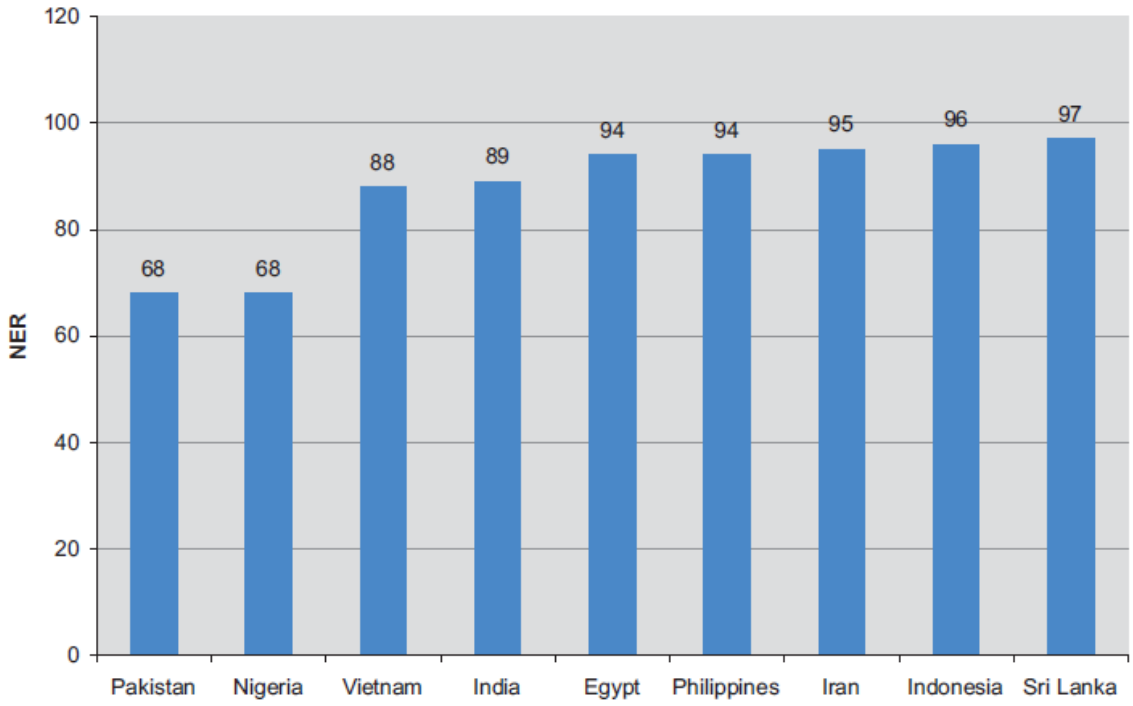
Considering rates of return as potential consequences of school capacity and enrollment is especially significant for developing countries such as Pakistan. This is because the rates of return to education in Pakistan have increased – overall rate of return was 4.6 % in 1986 and 15.4% in 1991 (Katsis et al., 1998). Performing well in tests and staying in school is also significant because according to Katsis et al. (1998), returns to secondary education (13.7%) are

[17] Lockheed, Jamison, and Lau (1980) claimed that four years of primary schooling increased farmers' productivity by 8.7 percent. However, newer studies have shown that unless primary schooling is continued, individuals tend to forget what they learned and hence education is not as helpful as it might be otherwise (e.g. Rouse, 2005). Psachoropoulos and Patrinos (2004) also suggest that rates of return are dependent on a sample's representativeness of the country's population.

[18] In developed countries, such as the U.S., dropouts can be expensive for the government because they are more likely to have health problems, become involved in crime, and otherwise depend heavily on government welfare programs (Rumberger, 1987).

higher than returns to primary education (8.4%) in Pakistan. Other developing countries or countries in South Asia often show a lower rate of return on education than Pakistan because they also often already have a higher enrollment rate and income per capita (Psachoropoulos & Patrinos, 2004). The chart below shows net enrollment rates (total enrollment minus repetition and dropouts) for selected countries within a similar band of income per capita.

Figure 1 – Net enrollment rates (NER) for selected countries



Source: UNESCO, 2005.

Pakistan shows the lowest net enrollment rate (68%) in 2005. As mentioned earlier, enrollment is related to school quality, which is measured through student achievement and test

scores. Low school and education quality is another challenge faced by Pakistan in achieving universal primary education. This challenge is described in more detail below.

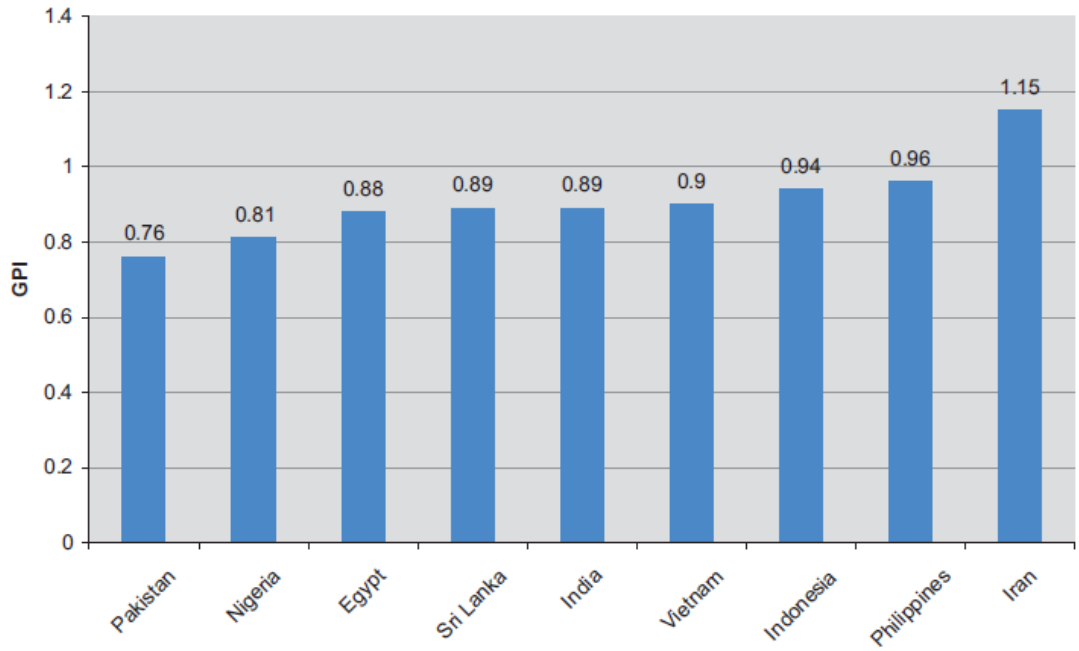
Low School and Education Quality

Many of Pakistan's education problems, such as low quality instruction, are related to lower salaries in most of the private sector (compared to the public sector), which lower incentives for teachers to impart quality instruction (excluding high paying elite private schools, such as Lahore Grammar, Beaconhouse, and Convent of Jesus and Mary). Lower teacher salaries and incentives are in turn tied to the overall low expenditure on education in Pakistan. Total expenditure on education as percentage of GDP was 1.8% in 2000-01 and increased to about 2.7% in 2009 (Pakistan Economic Survey, 2008-2009), which is still less than India's 3.1% in 2006 (CIA World Factbook, 2012). Other countries comparable to Pakistan include Bangladesh (both South Asian and Muslim majority), with a 2.4% of GDP education expenditure in 2008; Iran (neighboring and Muslim majority) with a 4.70% of GDP expenditure in 2009; and Egypt (PPP policies and Muslim majority) with 3.8% of GDP expenditure in 2008 (CIA World Factbook, 2012). These numbers show that in general, countries with lower GDP per capita, such as Pakistan and Bangladesh, spend less on education than countries with slightly higher GDP per capita, such as Egypt and Iran[19]. Lower expenditure on education and lower education quality also means that there is less than required access to quality education for achieving MDGs. It

[19] Expenditure on education is not only public; families bear many private costs even if tuition is free (Tsang, 1997).

also means that gender equity in education is difficult to achieve.[20],[21] This gender inequity is evident through the low gender parity index of Pakistan versus other countries as shown below.

Figure 2 – Gender Parity Index for selected countries



Source: UNESCO, 2005
Note: GPI = Gender parity index

Pakistan has the lowest gender parity index as well as the lowest net enrollment rate among nine countries selected by relative income and region. Lower education quality can also translate into lower student achievement. However, since Pakistan has so far not participated in standardized international tests (such as the Trends in International Mathematics and Science Study), it is impossible to make a definite claim about relative student achievement in Pakistan

[20] This was also shown by females having a lower literacy rate than males (42 versus 68% respectively in 2008; Economic Survey of Pakistan, 2008).

[21] This is also the reason why I differentiate this dissertation's analysis by gender.

versus other countries. Since low quality education is a possible indicator of low school capacity and other challenges in Pakistan's education, some potential solutions are policy alternatives to counter these challenges. These policy alternatives include improving quality of public, private, and increasingly, PPP schools.

1.4.3 - Potential Solutions

As mentioned above, policy options to address low school capacity and education performance in Pakistan include dealing with three types of schools – public, private, and PPP schools. According to Patrinos et al. (2009) and Table 1 in Chapter 2, finance and management provide useful criteria by which to classify school types. Finance in this dissertation's context refers to monetary funding in terms of grants or aid (not loans) that can be used to build and maintain school facilities, pay staff and teacher salaries, and be used for any other expense. Management refers to how funding is allocated and used for physical and human resources, school discipline, curricula etc.

Some past and potential future attempts with each school type are described below.

Improving public schools

In this dissertation, public schools refer to schools that are run by Punjab's Ministry of Education. These schools are funded by the government (both federal and provincial) in terms of their physical and human assets. These assets include school building, facilities, and teachers and staff that are hired through the government's own employment system where teachers also get transferred from one district to another. Public primary and secondary schools are free for

students where the Punjab government also has programs for free textbook distribution. Management of public schools begins at the district level, which is one level below the province as a political unit. Management at the district level has the authority to disburse funds, deal with human resources in schools, and monitor school building and facilities. Public school curriculum is decided at the provincial level and so are discipline policies for students, faculty, and staff. Therefore, both finance and management of public schools are the prerogative of the government.

Improving public schools at the primary and secondary levels of education is significant because as Burki (2001) claims, the public education sector is beset by problems such as poorly trained teachers, substandard and outdated curricula, and corruption. Since the public school sector is the largest education provision system in Pakistan (in Punjab alone, 70% of schools are public), its problems can affect the largest number of students. Students graduating from the poor public education system mostly find jobs in the public sector, which is consequently managed by an incompetent workforce. This results in a vicious cycle between the education system and the policy making government.

One of the methods to improve public schools' performance is to reduce the size of the public sector. The large size of the public education sector, as described earlier, is partly obvious by the sheer number of education departments in Punjab, which can lead to inefficiency in education provision and resource duplication. However, federal and provincial governments in Pakistan have been hesitant to reduce the size of the public sector, including education, because such a step would lead to large scale unemployment among the existing workforce (Government of Pakistan, 2010; personal communication, PMIU, 2011). Another traditional method to

improve public schools is to increase school resources, such as expenditure per student, teaching materials, school facilities and infrastructure, teacher training etc. (Hanushek, 1996). However, like decreasing the public sector size, this method has also not been as successful as expected even in developing countries (Tooley, 2007). In Pakistan, this is true at least for Punjab because although the World Bank funded and encouraged the Punjab Education Sector Reform Program (PESRP) beginning in 2003 through free textbooks and transportation for girls, the program did not yield its desired results (PMIU, 2011; PESRP, 2011).

In addition, there are also disagreements among policy makers, especially with changes in the ruling democratic party, so that policies are discontinued even if they could have been beneficial in the long run (Ministry of Education, 2012). For instance, the Higher Education Commission faced considerable political opposition in 2011 and the Punjab government suddenly shifted its focus to the Chief Minister's new "roadmap" instead of focusing on improvement or lessons from past policies.

In the 1990s and 2000s, the World Bank encouraged privatization of the public sector and establishment of more private schools to counter problems faced by the public sector (Burki, 2001). Among others, Tooley et al. (2007) has also advocated the low cost private school approach.[22] This private school improvement policy is already underway as is partly obvious through the increasing the role of the private education sector (Malik, 2009) and is discussed in the next section.

[22] According to Tooley et al. (2007), these low cost private schools can be both "aided" or "unaided" by the government where the aided schools can be interpreted as PPPs.

Improving Private Schools

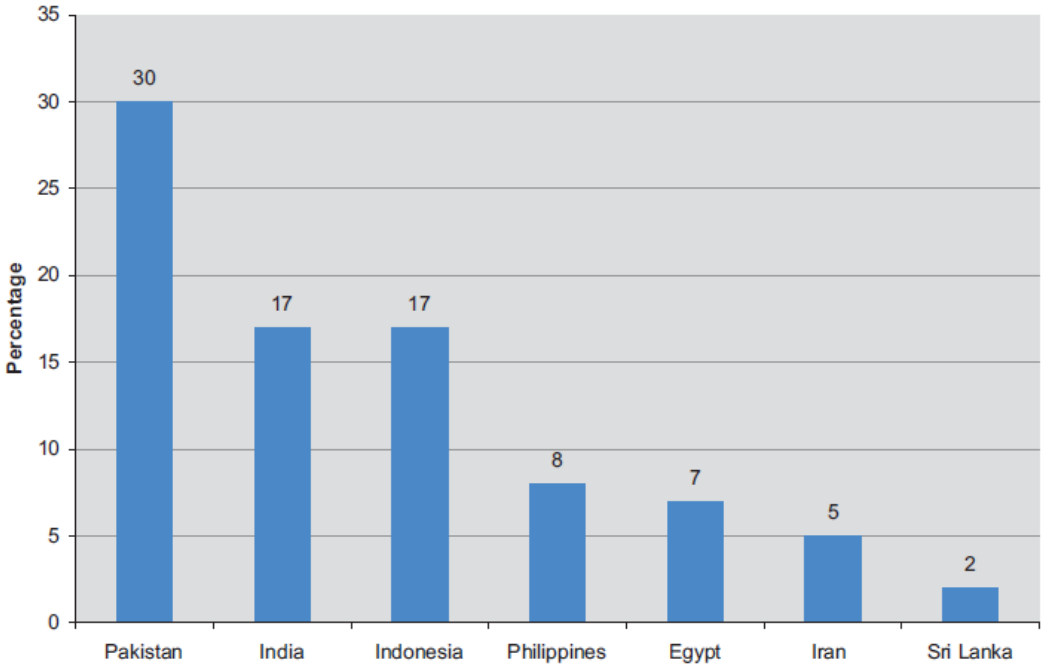
Private schools in Punjab are not run by the government except for a government body called Schools Education Department, which keeps track of the number of private schools and their locations etc. Private schools are also expected to be officially registered with the government although not all of them are. They are financed by individual owners or by non-profit organizations. Hiring and firing of staff and teachers, student fees, and initial investment are all the responsibility of the school owner. Depending on the school size and enrollment, private school management can retain its authority at the owner level for small schools or can be delegated to even teachers for large schools. School curriculum for private school varies from following Punjab's state curricula to following the University of Cambridge's international curricula. Low cost private schools often follow the Punjab government's curricula for all subjects, which makes these schools easy substitutes if parents are dissatisfied with education delivery of public schools.

Recently, private schools have been gaining popularity and are being established frequently especially in urban areas. According to the Federal Bureau of Statistics (2002), there were 36,096 private schools in Pakistan in 2002 out of which 66.4% were in Punjab, 17.9% in Sindh, 12.3% in Khyber Pakhtunkhwa[23], 1.5% in Balochistan, and 1% in Islamabad Capital Territory. About 61% of private schools are in urban areas. In 2005, the National Education Census showed that there were 76047 private education institutions (33 percent of all educational institutions). Out of the nine selected countries used in previous figures, Pakistan has the lowest net

[23] Formerly called the North-West Frontier Province (NWFP).

enrollment rate but as shown below, it has the highest proportion of students in private schools (~30 percent).

Figure 3 – Percentage of primary school students in Private Education for selected countries



Source: UNESCO, 2005

For the above countries with available data, the private education expenditures as percentage of total GDP are 1% for India and 0.3% for Indonesia (World Bank, 2002-03). Although the same statistic for Pakistan is unavailable, private schools cost students about 4 times as much as public schools in rural and urban areas alike (Pakistan Integrated Household Survey, 2002). Even with government subsidies for public and private schools, such as through PESRP, much of education costs are borne by families (e.g. uniforms, participation in field trips, standardized exams etc.) (Tsang, 1997). This can also lead to more income disparity where the more well-off can afford to send their children to private schools, where these children in turn

gain skills that provide them with more high paying jobs (Rothstein, 2004). Elite private schools are especially considered an indicator of class and ability (PEF, 2011).

However, private school enrollment in Pakistan is increasing despite higher costs and the government (sometimes through World Bank funding, such as in Balochistan) is encouraging private schools despite greater income disparity[24]. If this is an indicator of higher education quality (or at least the belief in it) in private schools, it can significantly inform policy. For instance, the government can adopt policies to lower private costs of education, perhaps through public-private partnerships, so that quality education is more widely accessible. Therefore, besides private schools, another policy alternative to increase educational quality is establishing public-private partnerships (PPPs). Like private schools, this policy is also fast gaining popularity especially since the World Bank supports PPPs through loans and grants. PPPs as a policy alternative in Pakistan are described in more detail below.

Establishing and improving Public-private partnerships in Education

Public and private are often seen as opposite ends of a spectrum such that PPPs can be seen as falling between the two ends – see Appendix D (Patrinos et al., 2009; Levin, 1999; Malik, 2009). Galetovic et al. (2009) agree with this classification since they categorize service provision into traditional/public, PPPs, and private. This also implies that one type of PPP can have a more "public" component while another can have a more "private" component, which can even depend on a country's context (Patrinos, 2009; Levin, 1999).[25]

[24] The Sindh government tries to limit the tuition and fees that private schools can charge (Patrinos et al., 2009).

[25] In economic jargon, there are many acronyms to categorize particular types of PPPs – for instance, BLT, BLTM, BOT, DBOT, DBFO, DBFO/M, JV, and ROT. B usually means build, L is for lease, R is for rehabilitation, T for

Documents by the World Bank (e.g. 2006, 2009) argue for the success of PPPs by showing that Pakistan follows multiple PPP models to cater towards different educational quality needs. The first PPP model consists of public schools being aided by the private sector, most often a non-government organization (NGO). For instance, the Punjab's Directorate of Education had partnered with an NGO called Idara-e-Taleem-o-Agahi whose main purpose is to temporarily advise the Directorate on pedagogical and human services matters under an adopt-a-school program. More specifically, the NGO dealt with low performing public schools to improve their budgeting, planning, management, and pedagogical skills (Sarwar, 2006 as cited in Patrinos et al., 2009) [26]. The partnership usually lasted for about 3-4 years – one year to perform its function, and the last 2-3 years to transfer operations back to the Directorate. Another example is the NGO Cooperation for Advancement, Rehabilitation, and Education (CARE) hired by the district governments of Lahore and Sargodha in Punjab where besides management, CARE employed one-third of total 3000 teachers and the government employed the rest (Patrinos et al., 2009). For-profit education systems, such as Beaconhouse, also managed some public schools set up the Pakistan Railways (PR) under PR's regulation[27]. As will be discussed in later chapters regarding the general PPP structure, the Directorate's and district governments' arrangement with the NGO had the advantage of a contractual partnership instead of just the private sector donating funds to the adopted public school.

---

transfer, O for operate, D for design, F for finance, M for management, and JV for joint venture (Galetovic et al., 2009).

[26] Patrinos et al. (2009) refers to a World Bank document on PPPs in education.

[27] All three examples are not that functional or effective anymore.

Another common PPP model in Pakistan is public finance and private management. Public-private partnership schools, which here are the FAS program schools partnering with PEF, broadly have public finance and private management (PEF, 2004-2012). This means that the government provides subsidies to low cost private schools to cover student fees and even other costs if the subsidy is greater than student fees. In return, these private schools are expected by the government to spend their financial resources on providing a higher quality of education for which they have to at least maintain a minimum level of school facilities. The government regulates these FAS program schools through two primary mechanism – one, if the school does not meet a minimum facility criterion, the partnership contract can end. Two, the government monitors the performance of these schools by conducting standardized tests called Quality Assessment Tests. If a school meets the test criteria, the partnership continues. In this sense, the government indirectly influences a school's management although theoretically, PEF does not interfere with the micro-operations of a school or how the funds are spent, teachers are paid, and staff is managed.[28]

Beside subsidies to private schools, the government also supports vouchers through this second PPP model, especially to girls through the Urban Girls Fellowship, under the World Bank's Balochistan Education Support Project set up in 1995 (although this program was not successfully implemented for long) (Patrinos et al., 2009). For this project, partners included the government, private schools, and education consumers (through parent committees). However, these vouchers were also submitted to schools and were limited to 100 girls. Another example of public finance and private management PPP model was the Basic Education Support Program,

[28] PEF has recently also started the Education Voucher Scheme to encourage girls' enrollment in urban slums (PEF, 2011; Patrinos et al., 2009).

also set up by the World Bank in Balochistan but with different partners – the World Bank, the government, rural community schools, and private schools. The objective of this program was to set up more private schools (especially in rural areas) with a four year subsidy per student.

A third PPP arrangement in Pakistan is where the private sector deals with both the public and private sectors. Patrinos et al. (2009) describe the Cluster-Based teacher training program that was implemented in Punjab to improve teachers' content knowledge and skills in clusters consisting of one public and two private schools. Another example is the Quality Assurance Certification Program that aids parents' school choice decisions by categorizing schools according to certain quality criteria and also providing capacity building training in both public and private schools. At a national level in Pakistan, the Agha Khan Foundation services (a private NGO) partners with the Directorate of Private Education to strengthen management practices and instructional skills in low cost private schools (LaRocque, 2008 as cited in Patrinos et al., 2009). Generally, these examples imply the private sector working with government bodies (Directorates) that in turn manage PPPs, fund private schools, and regulate private programs in public schools[29].

Additionally, at the very least, formal education for each child is also a public-private partnership because it can be called a school-parent partnership since a child learns from both home and school, and from how much the goals of each support or contradict each other (Levin, 1999). However, formal relationships between the public education system and various private sector entities were "modest in scope" compared to other school types (Levin, 1999, p. 124), at least for the U.S., which makes it interesting to examine their structure. These formal

[29] Another example is the Sindh Education Foundation in Sindh, Pakistan, running the Quality Assurance Resource Center with many partners including Department of Education and Literacy, Sindh Education Foundation, public, private, and NGO schools.

relationships were modest in scope for other countries as well although over the past few years, PPPs in developing countries, such as Pakistan, have been rising in quantity and quality. For instance, in Punjab, Pakistan, the Punjab Education Foundation is the main public sector organization that partners with private schools through the 8 year old Foundation Assisted Schools (FAS) program, which now has more than 2000 partner schools (PEF, 2012).

According to Patrinos et al. (2009)[30], the rise of PPPs in Pakistan was facilitated by its correct implementation by both the government and the World Bank, which depended on allowing low cost private schools to meet demand for schooling. These low cost private schools were already on the rise since 2000 (Andrabi et al., 2008 as cited in Patrinos et al. (2009)) with an increase of 15,000 private schools within five years in both rural and urban areas. Enrollment of rural low income students in these private schools increased from 0 to 6 percent between 2000 and 2005 so that when the Punjab Education Foundation (PEF) established its PPP program in 2004, it was able to support an already increasing private school sector. Since PEF's flagship PPP FAS program is the largest in Punjab and the public finance/private management model is currently the most common in Pakistan (Patrinos et al., 2009), this PPP model is chosen to be compared to public and private schools in this dissertation.

Based on the discussion above, this dissertation is aiming to compare the quality of education of PPP schools versus public and private schools using existing data on student achievement. This dissertation is also aiming to find out what parental preferences are when it comes to school choice in order to inform policy about potentially partnering with schools that meet these preferences. Keeping these aims in mind, the dissertation is organized as follows:

[30] The PPPs mentioned above are broadly categorized although within finance and management divisions. PPP contracts can be further divided into operation, services, support services etc. categories.

chapter 2 discusses the background and literature review of public, private, and PPP schools as means of improving educational quality. Chapter 2 also describes the specific PPP program being analyzed in this dissertation. In order to answer the first research question, chapter 3 begins by outlining the data and then conducts a statistical comparison of all three school types. As a continuation, chapter 4 answers the first research question by first describing the specific empirical method being used, and then by empirically comparing public schools to both private and PPP schools. Chapters 5 and 6 deal with the second research question. Chapter 5 describes the issues, literature review, and background of religion in education in Pakistan. It also discusses the qualitative methods being used to answer the second research question. Chapter 6 attempts to answer the second research question by analyzing data collected through qualitative methods. Chapter 7 ends the dissertation by combining the analyses from both research questions and examining PPP dynamics, policy implications, and future research.

The next chapter (chapter 2) discusses research and policy literature dealing with all three school types – public, private, and PPP – with a focus on PPPs in education.

Chapter 2 – Critical Literature Review

Building on the previous chapter's introduction of three school types (public, private, and public-private partnership) and their relationship with education quality, chapter two discusses theoretical and empirical research literature relating these school types and education quality. The discussion focuses more on public-private partnerships (PPPs) in education and provides a background for comparing the effectiveness of the three school types in terms of increasing educational quality measured by student achievement. The chapter ends with a description of the specific PPP program (called the Foundation Assisted Schools program) being compared to public and private schools in this dissertation.

From a broader research literature perspective, the study of school types can be seen as part of institutional economics[31], which has been making a "quiet comeback" in the recent decades especially because the neo-classical model of economics is "insufficient" (Krugman, 2009, accessed 02/19/10). Since education cannot be considered a pure public good (as described later), what is its institutional structure especially in Pakistan's context? In answering this question, I use the governance component of institutions as defined in the previous chapter[32].

How does education work as an institution? From an economic perspective, the production function is one possible way of describing and analyzing education (Carnoy, 2006; Hanushek, 1995). All three steps of the production process in education – inputs, processes, and outcomes are highly debated. For instance, from an inputs perspective, is teacher certification necessary

[31] Lamdin and Mintrom (1997) also take education to be part of welfare economics.

[32] Governance includes organizational frameworks but does not refer to organizations themselves.

to raise student achievement scores as an output (Hanushek, 1995)? These inputs go through a certain process in order to produce educational outcomes (Carnoy, 2006). In the traditional production function, institutions are the most important input (Rodrik, Subramanian, & Trebbi, 2004)[33]. Public, private, and PPP schools are three types of schools that act as institutions and possibly use different schooling inputs or at least process these inputs differently. The following is a discussion of these three school type structures and issues.

2.1 – Public schools

Since education serves both public and private interests (e.g. by instilling citizenship values and by making individuals more productive, respectively) (Levin, 1987; Minow, 2003), the first economic question to consider is whether or not education is a public good. Since the mass expansion of education (Green, 1990; Boli & Thomas, 1999; Boli, Meyer & Ramirez, 1985), education and schooling citizens has been a state/public sector's responsibility in order to reproduce economic, social, and political institutions (Gutmann, 1987). However, a public good has to be necessarily non-excludable and non-rival. It can be argued that education is non-excludable in "developing"[34] countries like Pakistan where education is mandatory for all

[33] Although some scholars suggest that a production function has only physical inputs (Schmid, 2005), others claim that institutions affect the use of such physical inputs and their allocation (North, 1991). According to Carnoy (2005), physical inputs can be considered the hardware of a production function, which would make educational institutions the software of the production function.

[34] Development is a widely debated term and unlike many other economic studies, in this context, it is used in a broader level that includes institutions and societal growth rather than just economic growth (Sen, 1999). Sen (1999) also includes freedom as both a cause and effect of development. Similarly, "modern" is also a contested word that implies economic growth for some (Schultz, 1971; Rostow, 1991) institutional structures for others (Boli, Meyer, and Ramirez, 1985) and has yet other meanings for other theorists. However, a country is still the relevant unit of analysis (Carnoy & Levin, 1985; Carnoy, 2000).

according to Education for All ("Learning for All" according to the World Bank's 2020 Education Strategy) and the Millennium Development Goals (Jones, 2006). However, within educational institutions themselves, such as schools, specific resources can still be rival and excludable – for instance, a teacher's time cannot cater to all students simultaneously and if enrollment exceeds expectations, free textbooks might also not be available to all students.[35] This implies that instead of being a public good, education is a public service provided by the public sector (as well as the private sector) even if it has positive externalities[36].

Within this context, a public school can be defined as "a school that is owned, funded and operated by government, with teachers and those supporting the work of teachers at the school site being employees of government" (Caldwell & Keating, 2004, p. 19). Structure-wise, it is important to see if the finance and management of public schooling are centralized or decentralized. Centralization and decentralization can be related to arguments of efficiency, which is considered significant in producing higher quality education (Carnoy, 2006). In Pakistan, control of education is fairly decentralized until the tehsil level (equivalent of U.S. county) and financially, public schools depend on federal and provincial allocations of resources. Although provincial allocation of finance has the advantage of increasing equity in expenditure levels across districts and tehsils etc., it also means that the provincial government (or even the federal government at times) can impose a greater tax burden on the public, especially in the case of a general tax. Supporters of decentralization for both collecting

---

[35] Among private schools, an example is schools participating in the Foundation Assisted Schools program that cannot go beyond a certain enrollment limit (PEF, 2009).

[36] This argument is also supported by Lamdin and Mintrom (1997) who claim that education is a private good that is publicly provided (Stiglitz, 1988).

funding and/or expenditure also argue that local sources of funding can have the advantage of allowing residents to directly see the results of their contributions, possibly increase a sense of community participation and accountability e.g. in Brazil and Chile (Winkler 1993, Carnoy 2006), and increase motivation for education achievement.

Management-wise, another argument for decentralization, the sixth five-year plan of Pakistan discusses "casualties" of central government control of education – low quantity and quality of education due to an increased financial burden (Government of Pakistan, 1982, p. 318-319). In terms of curriculum reform (also referred to as the "hardware" of the teaching process (Carnoy, 2006)), it can be argued that decentralizing curriculum control can increase achievement because of a community's greater ability to discern instructional needs (e.g. students' mother tongue), respond with greater sensitivity to local variation, and provide more choice for consumers (i.e. parents and students) (Bray, 1984).

Conversely, what happens when local school resources are insufficient to meet local needs or where fiscal capacity varies across states or schools (a common occurrence in developing countries that can even lead to social unrest; Winkler, 1993)? Then central control and disbursement of funds can be helpful. Moreover, providing funding to public schools without expenditure guidelines (an example of decentralization) can exacerbate inequity and even reduce absolute enrollment etc. For instance, federal decentralization of resources in China increased inequality in educational attainment because of greater local government corruption (Chen, 2004). This can also be true of developed countries, such as for the 1965 Elementary and Secondary Education Act (ESEA) in the U.S., which could not prevent the growth in the number and percentage of children living in poverty. This implies that central

regulations for education expenditure can "permit more efficient deployment of these resources" (Guthrie 1997, p. 34) to, for instance, more disadvantaged schools. In turn, efficiency in using resources can increase achievement of low income students, and hence also reduce achievement inequity.

In addition, as far as management and implementing reforms is concerned, decentralizing might not be "good" because low income states and municipalities in developing countries, such as Pakistan, with weak accountability mechanisms are often unable to translate reform ideas (e.g. by Ministries of Education) into practice (Chile and Brazil; Carnoy & McEwan, 2001). Moreover, greater state effort to expand education can lead to positive externalities through building citizenship and social capital that, in turn, can increase educational achievement (Carnoy, 2006). In terms of curriculum reform, a central control is advantageous because redundancy in curriculum planning, reinventing the wheel, and resource duplication can be prevented to make curriculum more achievement related. It is also important to note that greater centralized school management in curriculum does not necessarily equal uniformity in curriculum. Many centralized developing countries attempt to "differentiate the curriculum to meet the instructional needs of different social groups" (Winkler 1993, p. 109), and also interpret standardized scores data to increase achievement and equity.[37]

For instance, one important aspect of implementing curriculum properly is having knowledgeable and skilled teachers that are often trained successfully at the federal level, e.g.

[37] Moreover, increasing emphasis on technology due to modern labor markets and communication requires greater uniformity in education and skills that is better provided by a central body (Weiler, 1990).

in Cuba (Carnoy & Marshall, 2005)[38]. This central training ensures that most Cuban teachers are well-versed in using math "technology" in classrooms, not only facilitating student achievement but also promoting achievement equity due to uniformly high standard training[39]. In contrast, where schools have either a choice of which curriculum to implement, as well as where teachers are not trained centrally (e.g. in Brazil), student achievement can vary widely, especially when teachers cannot meet curriculum demands in low-income areas. Therefore, it seems that more central control of curriculum formation and management can lead to higher student achievement and equity in developing countries.[40]

As a qualification, it is important to keep in mind that decentralization itself cannot occur without the prerogative of the central administration. Paradoxically, decentralization can even lead to greater control by the central government (Winkler, 1993; Roseneau, 2000) in its effort to ensure that authorities with delegated power are using it for the right purposes and with appropriate measures (Weiler, 1990). Moreover, the exact mix of centralization and decentralization can depend on the values attached to achievement, equity, and social cohesion by the society. For instance, those who highly value equity in education might argue for more centralized school finance and management while those who value achievement and productive efficiency might argue against centralized school finance and management (Winkler, 1993). Therefore, complete decentralization in school finance and expenditure, and school

[38] The Punjab Education Foundation also trains teachers and staff of some of its FAS partner schools i.e. at the provincial (centralized) level.

[39] Before making a direct comparison between Pakistan and Cuba, it is important to remember their social and political differences. For instance, while Cuba has a population of about 11 million (World Development Indicators, 2010), Pakistan's population stands at about 170 million (World Development Indicators, 2010). Moreover, Pakistan is a Federal Republic (American Institute of Pakistan Studies, accessed 03/10/2011) while Cuba is a Communist state (CIA World Factbook, 2011).

[40] Assuming that at least some of Cuba's characteristics are similar to those of other developing countries.

management is not always “good” for achievement and equity in developing countries. Thus it is obvious that the existence and quality of public schools will depend on both the communal fabric and government provision of public services.

Summing up the discussion above, it seems that all public schools share some similar characteristics and pro-public-schools arguments, while other characteristics and arguments differ by the extent of decentralization of public education. Similar characteristics include the main funding source (government), faculty and staff (selected through a government mechanism), and certain mandatory facilities in all schools. Decentralization can differentiate school management, the process of faculty and staff selection, and fund disbursement. Arguments in favor of public education include focus on equity, wider access, and no or low costs of schooling. Decentralization can further argue for more targeted equity and access, more relevant curricula, and greater responsiveness to local needs. However, there are several disadvantages of public education and schools, which can form a basis of arguing in favor of private schools.

One weakness of public education, especially in developing countries, is that it can lead to a vicious cycle of inequity through a self-actualization process. This is due to the difference between public and private school students and family backgrounds of these students (Dronkers & Robert, 2003). For instance, parents of private school students are possibly generally more well-off than parents of public school students since the former can afford to pay private school fees whereas public schools have no or very low cost of attendance. Lower income parents whose children attend public schools are also less able to provide their children with extra learning resources (Rothstein, 2004) and instead, might expect them to help in

running the household, which can decrease study time for public school students. Consequently, students from public school might also achieve a lower level of learning than private school students, which will not result in high earning jobs[41]. It will also result in private schools attracting more able students who further lead to better private school learning and performance. Conversely, public school graduates might become public sector employees or ill-trained public school teachers, thus reinforcing the cycle between education and earnings, and leading to greater income gaps between public and private school graduates.

One of the issues to keep in mind when discussing public schools is that the public education sector does not only have a formal administrative and financial structure as described earlier, but there is also an informal structure in public education. An example of this informal structure is the tie(s) between management and teachers, which can in turn lead to an environment more conducive for better student performance (Dronkers & Robert, 2003). For instance, if school boards are willing to provide teachers with their desired resources, teacher absenteeism and protests against unfavorable school practices can decrease allowing teachers to focus on student learning.

Therefore, both formal and informal structures of public education can influence teacher morale, motivation, learning environment, and hence the effectiveness of teaching and learning (Dronkers and Robert, 2003). This means that if public schools are arguably plagued with corruption, nepotism, bureaucracy etc. (e.g. Shah et al., 2004), unconstructive behavioral patterns of school management, teachers, and students are likely to emerge. These potential

[41] According to human capital theory.

weaknesses of public schools encourage establishment and government support of private schools, which are discussed below.

2.2 – Private schools

Education can be considered a productive private good if it can perform efficiently in a market setting (Carnoy, 2006; Friedman, 1962; Hoxby, 1996). This is in accordance with neoclassical welfare economics that shows that private education in a competitive market is the most efficient way to use education resources (Lamdin & Mintrom, 1997). In an economics of education context, schools (representing firms providing education as a good) compete with each other for students and parents (customers). In doing so and assuming perfect information for customers, education quality is supposed to increase (Friedman, 1962).

Using this private good argument, privatization of education has been touted as a means of addressing bureaucracy and hence improving achievement and equity (The World Bank, 1988; Winkler, 1993 etc.) so that goals of high rates of return and economic growth can be achieved. Arguments for privatizing finance and/or management of schools draw upon claims of more choice and innovation; reflection of community interests; less corruption; lower costs for the government; greater flexibility; risk sharing; and higher efficiency in use of resources in order to raise educational achievement of students (Patrinos et al., 2009; Carnoy, Gove, & Marshall, 2007; Lockheed & Jimenez, 1996; Winkler, 1993; Harrison, 2005; Orazem, 2000). In contrast, arguments against private schools include greater inequity in educational access and achievement; resistance from stakeholders; prerequisite of capacity building of public and private sectors in low income countries/localities for effective accountability mechanisms; and

increased costs in some types of private schools (Patrinos et al., 2009; Carnoy & Marshall, 2005; Roseneau, 2000). It is clear that arguments for and against private schools include both financial and management components of education provision.

Taking the production function approach for education, school finance can act as an input into the schooling production function where the desired outcomes are higher achievement and equity in achievement. Private schools do not receive any local, regional or nation level public funding and instead rely completely on fees, donations (especially low and middle cost schools), sponsorships, and parental fundraising. Elite private schools are especially dependent on high student tuition, facility, and extra-curricular fees although they also sometimes provide scholarships to high achieving but low income students to create a "cream-skimming" effect. Moreover, despite counter-arguments (by, for instance, Sarangapani (2009) who argues for completely public schooling), Jain and Dholakia (2010) suggest that one way of encouraging the private sector's growth is to encourage low cost private schools that pay low teacher salaries as a way of decreasing costs as well as increasing incentives to provide better facilities to students and staff. Tooley et al. (2007) also argue that low cost private schools with low teacher salaries do not perform worse than public schools with high teacher salaries, perhaps because of close teacher supervision in private schools versus low teacher attendance and supervision in public schools.

Management of school inputs can be seen as a process in the schooling production function. Private goods are most often supplied by for-profit and non-profit organizations, including religious organizations, usually in an attempt to provide public services such as education (Minow, 2003). Although these private schools are independent of the public sector,

their independence is still somewhat threatened if the government sets criteria for some socialization of students, or if other influences, such as university admission criteria, determine private schools' curricula (Dronkers & Roberts, 2003). Moreover, teachers are an important component of how curriculum is taught to students so that not only are teachers inputs, they can also act as processes, for instance, through receiving teaching training. A disadvantage of the private school sector, at least in Pakistan, is that private schools do not have a vested interest in training teachers since it is costly. In contrast, all public school teachers are trained at a central training facility (PMIU, 2011). Yet, Harrison (2005) argues that public sector deployment of teachers will lower teaching quality because of an inadequate incentive structure whereas the involvement of the private sector will encourage teachers to be more hard working and effective because they have an incentive to be rewarded by the market (Hoxby, 2001)[42]. The greatest independence of private schools is their ability to admit their desired number and type(s) of students (Dronkers & Robert, 2003).[43]

One of the problems with private schooling is that it can increase inequity. The concept of equity in educational opportunities and choice can be divided into horizontal and vertical equity (Reich, 2006). Horizontal equity refers to the idea that students with similar or different abilities should be able to access the same kinds of schools regardless of parental income – "one scholar, one dollar" principle (Wise, 1967). Vertical equity is the idea that students with greater ability should be able to access higher quality schools or that certain "needy" students, for instance, those who are disadvantaged by lower income or disabilities, might require

[42] This concept is closely related to the FAS program I analyze in this dissertation because one of its components is providing incentives to private school teachers if their students score high on the quality assessment tests.

[43] This is also related to issues of selection bias as outlined in chapter 4's empirical methodology.

additional resources to overcome such disadvantages (Reich, 2006). In other words, although equity is not just based on income, horizontal equity fiscally means treating similar students similarly and vertical equity means treating different students differently. While efficiency measures look at gains in educational attainment and achievement, measures for equity can consist of the same indicators but also examine the gaps among income groups. Private schools can violate both horizontal and vertical equity by choosing their students based on income or ability.

Another argument against private schools is that assumptions of perfectly competitive markets, such as perfect information for all market players, are not realistic (Valila, 2005). Market failure can also occur through market monopolization, positive and negative spillover effects (externalities), and incomplete markets (Lamdin & Mintrom, 1997). Additionally, it is sometimes argued that private schools do not instill the necessary social cohesion and democratic values among students (Patrinos et al., 2009). These arguments claim that the public sector component of education leads to a functioning democratic society and using education as a private good can hinder society from achieving its public aim (Levin, 1991). This is considered an example of market failure and the only way to increase social welfare is to have the state provide a public good or service (Valila, 2005). Moreover, even if markets can provide efficient outcomes for public services, the public sector sometimes intervenes for reasons of equity and consumption of "merit goods." Education is an example of "goods that individuals do not consume in sufficient quantity to ensure their own welfare" so that the

public sector intervenes to ensure citizens attain at least a minimum level of education (Valila, 2005, p. 97).[44]

From the discussion so far about both public and private goods, it appears that they serve opposing functions (e.g. public service versus non maximization) and are consequently organizationally different. However, an important issue to keep in mind is that the distinction between public and private schools is still crude. This is because according to Dronkers and Robert (2003), both school types can have a similar historical friction between the Church and market forces, single Church and multiple churches orientation, affiliations (weak or strong) with multiple political parties, and recent versus traditional approaches to education. Different reasons can lead to different extents of state authority as well as different within-school organization and delegation of authority. Yet it is still possible that public and private schools serve the same function in society, especially if it relates to equity or a degree of socialization/social cohesion (Dronkers and Robert, 2003). Given this context, it is interesting to examine a new school type that combines public and private sectors through public-private partnerships, as described below.

2.3 – Public-private partnerships

According to the Punjab Education Foundation, "PPP is an efficient and time tested mechanism to encourage and promote market-based social entrepreneurship" (Malik, 2007).

[44] Although education can have positive externalities for society, that is not analogous to being a merit good because merit goods are assumed to provide sufficient education for all public and private needs. This can be a false assumption since these needs can include different quantities and qualities of education for various aims of a diverse society.

This sentence brings together several themes discussed in the literature regarding PPPs – efficiency, mechanism, market-based, and social entrepreneurship. These themes are also inter-related; for instance, some mechanisms are more efficient than others. Friedman's 1962 voucher proposal was one of the first formal PPP proposals to combine government funding with a market mechanism that was considered more efficient. In the following literature review focusing on these themes, I rely to a large extent on Galetovic et al. (2009) and Patrinos et al. (2009)[45] in laying the groundwork for my conceptual framework and details for PPPs.

Generally, PPPs seem to be an increasing part of "modern societies" that call for "flexible and diverse approaches" (Caldwell & Keating, 2009, p.i)[46]. Modernity now also refers to institutional development (Sen, 1999, The World Bank, 2010). One indication of institutional development is to combine the public and private into a unique partnership where developing countries are now following developed countries that have had PPPs since a while, such as the United States, the United Kingdom, the Netherlands, Australia etc. For instance, in 1999, there were about 40 education management organizations being traded on the New York Stock Exchange (Powers & Cookson, 1999).

As far as PPPs as an institutional type are concerned, can PPPs act as inputs as well as processes in an education production function? This question is relevant since in PPPs like the Foundation Assisted Schools in Punjab, Pakistan, educational inputs including institutions (Rodrik et al., 2004) are processed through an institution itself - a PPP. Arguments in support

[45] Patrinos et al. (2009) discuss PPPs from both research and advocacy's standpoints.

[46] The definition of modernity has usually referred to economic growth where a traditional society becomes industrialized and where the "modern" man has the flexibility to adapt to surroundings and become more productive (Inkeles & Smith, 1971).

of and in disagreement with PPPs as well as the description of their structure help to answer this question. The next section describes the structure of PPPs.

2.3.1 - Structure of PPPs

There can be various types of PPPs according to how finance and management are assigned. This dissertation only examines the finance and management mechanisms of PPPs although there are other aspects that can be analyzed as well (for instance, family input, non-profit partners etc.; Belfield and Levin, 2005). The reason is Punjab Education Foundation's own emphasis on only finance and management in terms of how it forms its public-private partnerships in the FAS program (PEF, 2009; PEF, personal communication, November 11th, 2011). The box below shows this conceptually:

Table 1 - Various divisions of management and finance in PPPs

	Finance (f)	
Management (m)	1. Public (m)/Public (f)	2. Public (m)/Private (f)
	3. Private (m) /Public(f)	4. Private (m)/Private(f)

Source: Author's own analysis based on literature; Lamdin & Mintrom (1997).

At one extreme, public schooling is an example of the first cell whereas purely private schooling or homeschooling is the other extreme shown in cell 4. In other cases, for instance, if education PPPs consist of private firms managing public schools, such as in Abu Dhabi, and the Center for British Teachers and Cambridge Education Associates in Britain (Caldwell &

Keating, 2004), then the financing will often come through user fees (i.e. student fees). These user fees could in turn be paid by the government on behalf of the students. This will correspond to the second cell in the box above because schools are public. If education PPPs consist of the public sector (Ministry of Education, local, provincial, or federal) supporting privately provided education, then the financing will often come through government subsidies/transfers (such as in the Foundation Assisted Schools in Punjab, Pakistan), guarantees, shadow fees[47], and availability payments. This will correspond to the third cell in the box above because the schools are private.

In other words, PPPs in education can be demand-sided (second cell)[48] from the government's perspective because the government demands services of the private sector in managing public schools while often paying user fees itself. Jain and Dholakia (2010) argue that rather than government financing through for instance, vouchers, management of public education institutions by private entities is a more efficient way of using scarce resources (6 percent of GDP) to improve educational quality in India. PPPs can also be supply-sided from the government's perspective (third cell) since the public sector provides funds so that private schools can deliver quality education on the former's behalf. The FAS program in Punjab (cell 3 in Table 1), is an example of a supply-sided PPP (Patrinos et al., 2009). However, both demand and supply side financial incentive PPPs are essentially subsidies to the private sector without which the private sector would provide a "suboptimal quantity and quality of the service in question" (Valila, 2005, p. 108).

[47] Shadow fees are paid by the government and users (students in this case) are not charged for the service.

[48] Although education itself has historically been completely supply driven by the state (Archer, 1984).

Despite differences in specifications, PPPs have one thing in common – a contract or an "interactive" arrangement between the public and private sectors, which makes them different from mere government concessions (Valila, 2005). For instance, Grimsey and Lewis (2004) define PPPs as "...arrangements whereby private parties participate in, or provide support for, the provision of infrastructure, and [...] a project results in a contract for a private entity to deliver public infrastructure-based services." According to the U.S. National Council for Public-Private Partnerships, a PPP is a "a contractual agreement between a public agency (federal, state or local) and a private sector entity [whereby] the skills and assets of each [...] are shared in delivering a service or facility for the use of the general public. In addition [...], each party shares in the risks and rewards potential in the delivery of the service and/or facility."

In other words, the existence and structure of PPPs rely heavily on their incentive structure and this differentiates them from both public and private provision of education (Galetovic et al, 2009). For instance, when user fees are not possible, inputs for the primary and secondary education production function can be "contractible" (where inputs often include teachers-student ratio, equipment etc.; Galetovic et al., 2009, p. 7) so that educational quality is not compromised. More specifically, a PPP from an economic perspective can include a) risk sharing, b) temporary ownership of assets by the private sector, and c) bundling of construction and operation (although this kind of bundling has not occurred in the education sector yet, Patrinos et al., 2009).[49] Risk sharing and financing make PPPs similar to public provision of

[49] Bundling at different phases of the project can reduce its life-cycle costs (Valila, 2005).

services whereas asset ownership and bundling makes them similar to private provision of services (Roseneau, 2000).

The optimal PPP in terms of achieving its objectives depends largely on the level of risk sharing between the public and private sectors because risk transfer to a private entity can increase productive efficiency through improving evaluation and management of a project's risks (Patrinos, 2000; Valila, 2005). However, to achieve or even recognize the optimal level of risk sharing depends on identifying and quantifying relevant financial indicators (Patrinos et al., 2009). This is especially difficult because there can be various types of risk – technical, economic, and political (von Hirschhausen, 2001) – as well as external risks (global) and internal (elemental) (de Lemos et al., 2001; PROFIT, 2001).

More specifically from the education perspective, a PPP contract can relate to all three steps of the education production function – inputs, processes, and outcomes. The following table shows the various PPP arrangements in education (Patrinos et al., 2009)[50]:

[50] Another interesting type of PPPs is "moral persuasion" as described by Caldwell and Keating (2004). They provide Nelson Mandela as an example of using public influence to attain private funds in order to achieve the moral goal of establishing schools for the poor. He raised money through moral persuasion PPPs for 127 schools during his Presidency.

Table 2 – PPP contracts of the education production function

What governments contract for	What governments buy
Management, professional, support services (input)	• School management (financial and human resources management) • Support services (meals and transportation) • Professional services (teacher training, curriculum design, textbook delivery, quality assurance, and supplemental services)
Operational services (process)	• The education of students, financial and human resources management, professional services, and building maintenance
Education services (outputs)	• Student places in private schools (by contracting with schools to enroll specific students)
Facility availability (inputs)	• Infrastructure and building maintenance
Facility availability and education services (both inputs and outputs)	• Infrastructure combined with services (operational or educational outputs)

Source: Adapted from World Bank 2006.

Source: Cited in Patrinos et al. (2009).

The FAS program can be interpreted as having two types of contracts: education services in order to produce student achievement as an example of educational outcomes; and/or facility availability and education services. Facility availability can be included in the contract because PEF requires a minimum quantity and quality of facilities in its partnering schools. These facilities act as inputs, which go through a process (PPP), in order to produce an educational outcome (e.g. quality education and hence student achievement). Although other support and operational services are not part of the contract itself, they are indirectly required in order for the PPP contract to remain valid. For instance, if human resources are ill-managed, teacher performance will be low and student achievement can suffer, which can make students fail the QATs and the contract can end.

The above example of the FAS program shows that PPP contracts have measures for student performance and other educational outcomes in the education production function so that related stakeholders in the PPP can be held accountable (Patrinos et al., 2009). PPP regulation is also significant such that a reduction in government expenditure on a certain type of educational policy that frees resources for other services can be offset by expenditure on monitoring, regulating, and evaluating PPPs (Levin, 1999; Roseaneau, 2000). For instance, the Punjab Education Foundation administers Quality Assessment Tests twice a year in the schools it subsidizes, which can lead to an overburden on teachers as well as time wasted on test preparation rather focusing on actual student learning (Malik, 2009). Therefore in the long run, over-regulation can even be counter-productive.

It is important to mention here that rule of law is a significant prerequisite in designing PPPs (Galetovic et al., 2009). Rule of law also influences the functioning and outcomes achieved under an education PPP (Patrinos et al., 2009). In countries with weak rule of law, non-profit private organizations often partner with the state in order to provide education (Fagerlind & Saha, 1989). For instance, philanthropies, such as the Bill and Melinda Gates Foundation, work internationally in developing countries, and non-government organizations (NGOs) such as Bunyad in Pakistan, effectively provide education to the poor that the state cannot. However, NGOs also come with their political baggage so that they do not necessarily always positively affect expansion of quality education (Fisher, 1997).

A more informal yet equally (if not more) significant type of PPP is that of parents (private sector) and schools (public sector) (Levin, 1999). This is true especially if we examine the relationship between the socio-economic status of a family and a student's educational

achievement in schools. For instance, well-off parents establish home atmospheres that are conducive to learning (e.g. use educated vocabulary); communicate effectively about school programs and activities; volunteer parental support; induce learning at home by helping students with homework; involve families in decision making; provide additional educational resources; and collaborate with the larger community (Epstein et al., 1997; Heath, 1983). Moreover, parents can also be involved in their children's schools through attending school events, being members of the parent-teacher association (if available), interacting with other parents etc. This is an example of parents (representing the private sector) partnering with a school that provides education as a public service.

The next section begins to describe arguments for and against PPPs. According to Patrinos et al. (2009), the four main objectives of PPPs in education are increasing enrollment; improving educational outcomes; increasing equity; and reducing costs of the public sector. However, it is significant to keep in mind that several arguments in favor of PPPs are presented by policy advocates of PPPs, such as Patrinos et al. (2009), and Caldwell and Keating (2004).

2.3.2 - Advantages and Disadvantages of PPPs

According to Malik (2009), PPPs can have the advantages of privatization and decentralization without education becoming a privatized commodity especially because pure privatization is becoming increasingly less common (Galetovic et al., 2009). This is especially useful considering strong arguments on both centralization and decentralization/privatization of education can make it difficult to make large scale policy decisions about PPPs. One of the

arguments in favor of PPPs is the same as for private schools – increase in efficiency of producing quality education – and is discussed below.

Productive Efficiency

One of the main justifications for using PPPs versus other policies in order to achieve the four objectives outlined by Patrinos et al. (2009) is that PPPs increase productive efficiency.[51] Theoretically, this is made possible when competition arises among firms so that only firms that have a positive private and social value will remain in the education market. Friedman calls these "neighborhood effects" that arise if positive externalities are identifiable and lead to social value (Friedman, 1962). "White elephants" are filtered out of the competitive education market since they have a negative private value (Galetovic et al., 2009). This is especially true if PPPs are financed through user fees so that projects that are less profitable are dropped by the private party. In economics, the concept of Pareto optimality applies in efficiency, which states that no one can be made better off without making anyone else worse off. Ideally, more efficiency means more productivity and better educational outcomes necessary for incorporation into the economy (Harrison, 2005) where educational outcomes can include test scores, retention rates, drop-out rates etc. (Ferris & West, 2000)[52]. The private productive efficiency argument is a direct derivative of the public choice theory according to which, government bureaucracy is inherently wrought with inefficiencies (Buchanan, 1980).

[51] According to Valila (2005), allocative efficiency is not sufficient in determining the means of public service provision – conventional, PPPs, or private – because it is difficult to determine ex-ante which means will increase overall economic efficiency.

[52] As the qualitative analysis in Chapter 6 shows, parents choose schools depending on the schools' educational outcomes and reputation, which are not necessarily dependent on efficiency and can also depend on a school's student composition. Moreover, Levin and Belfield (2005) describe how families can choose schools based on the basis of ethnic, religious, and cultural aspects of the student body.

More specifically, productive efficiency in PPPs implies education production in a market mechanism. In the market, parents and families are assumed to be the consumers who demand education vouchers (an example of PPPs), and schools are the suppliers of education vouchers.[53] Moreover, in economic terms, an ideal market would be perfectly competitive with no or minimal government regulation given sufficient public goods production (Friedman, 1962). An example is school vouchers in the education system that are meant to increase competition among schools for attracting more students and parents who hold school vouchers and hence theoretically have been given more choice in their schooling decision (Patrinos, 2000; The World Bank, 2006).[54]

Productive efficiency is maximized when average costs are minimized for a given type and level of education, which arguably does not happen in the public sector if, for instance, it has public employee unions that maintain a high staffing level (Lopez-de-Silanes, Shleifer, & Vishny, 1997; Harrison, 2005). PPPs also imply that the government can influence overall allocation of resources to education so that the public sector can determine allocative efficiency and the private sector can determine productive efficiency (Valila, 2005). If cost reduction by the private entity leads to quality reduction in education services, then allocative efficiency is reduced. In turn, PPPs often exist when there is a potential for market or public sector failure if consumer expectations or demands are not met. Public sector failure often leads to the privatization of education management, such as in Islington, England and the company Edison

[53] On the other hand, another market can exist between the government and schools where the government supplies education vouchers to schools who demand them based on the demand they perceive from parents. In other words, the two markets depend on each other.

[54] I limit the analysis to PPPs that are publicly financed.

in the United States (Caldwell & Keating, 2004) although the success of this privatization is not guaranteed. For instance, schools managed by Edison did not necessarily perform better than similar public schools (Gill et al., 2005). The latter has to be qualified by admitting that in reality, market and public sector failure can occur despite PPPs because of internal factors, such as corruption and nepotism (Farlam, 2005).

Increasing competition ideally provides schools with incentives to: a) improve the schooling product - academic achievement; and b) decrease production costs. Improving academic achievement or any schooling product improves choice and productive efficiency. Decreasing production costs can affect both micro (school sites) and macro (overall infrastructure) levels.[55] However, when comparing costs of producing education in different schools and infrastructures, it is important to define costs accurately and comprehensively, and compare units with similar students and services. This is significant in not only conducting a cost-benefit analysis of the education policy, but also in conducting a cost-benefit analysis of the PPP itself because transaction costs in PPPs (tendering, bidding, contracting, monitoring in a long term arrangement)[56] can reduce gains in productive efficiency (Valila, 2005). Conversely, if costs are defined narrowly and discounted properly, then it is possible that a PPP will have a positive net benefit (Roseneau, 2000). Another way that PPPs can increase efficiency is to define the population that it serves – sometimes large consumers experience a cost decrease while small consumers experience a cost increase (Carlisle, 1998). In other

[55] This is especially true if voucher plans attempt to simulate a private market where students tend to come from high income and better educated families (Rothstein, 2004). In addition, when calculating and comparing micro costs for schools, micro costs should not be compared to overall district costs where the latter can include accommodating additional and special education children, teacher salaries, record keeping, transportation, providing information to parents, dispute adjudication, accreditation and monitoring of schools etc.

[56] For instance, in the U.S. context, monitoring costs should be budgeted as 10 percent of the contract value (Torres & Pina, 2001).

words, a PPP structure has to be defined in a way that provides incentives to produce education most efficiently at the least cost.

In order to increase productive efficiency, cost-benefit analysis of PPPs is related to the value for money concept (resource efficiency) discussed in Grimsey and Lewis (2004). According to Andersen (2005), there are six main determinants of value for money of PPPs – competition; risk transfer; long term nature of contracts (including life costing); the use of output specification; performance measurement and incentives; and private sector management skills. From among these six determinants, competition and risk transfer (related to contracts as well) can be considered most relevant to productive efficiency so that the maximum value for money is obtained due to the optimum allocation of risk between the public and private sectors. Other determinants, such as output specification, are not necessarily as relevant to productive efficiency in education because outputs can differ for various consumers especially when parents prefer one school over another for their child(ren).

Overall, PPPs are assumed to have productive efficiency because they have elements of the private sector, and hence are able to attain their goal of improving educational outcomes, including higher student achievement. The next section discusses how PPPs can also have the advantage of increasing equity in education.

Equity

One of the main aims of PPPs in education is to increase equity (Levin, 1999; Roseneau, 2000). On a general level, equity is often defined as a measure of fairness in treating school districts and is based on values of justice. However, it is uncertain what precisely

fairness refers to – schooling inputs (resources) or outputs; achievement or future income among pupils; or equity of expenditure/achievement among states, districts, classes, or pupils (Cohn & Geske, 2004). An example of inequity is the differences in expenditure per pupil (EPP) among states in the U.S.[57] For instance, the spending ratio of high-spending to low-spending districts often ranges between 3 and 9 (Cohn & Geske, 2004).[58] Moreover, residential stratification in the U.S. forces parents in one district to send their children only to that district's school regardless of its quality and the parents' preferences. If parents prefer sending their children to a different school, they have to purchase property in that district, which can further increase inequity since low income families cannot afford this (West, 1996).

Keeping these issues in mind, increasing equity in schooling can be defined as decreasing disparities in EPP among districts, reducing the relationship between school district wealth and spending per student, and providing similar educational choices to all families and students. Since several large scale PPP programs, such as the voucher system in Chile since 1981, focus on school choice, it is interesting to examine that from an equity perspective. One consideration could be the mixing up of students. According to Jencks and Mayer (1990), learning also occurs through social interaction among different income groups and such social interaction is increased through PPPs, such as vouchers, which have the potential of allowing students to cross income-based district boundaries.

Moreover, achievement and equity themselves can be inter-dependent (Sennett & Cobb 1973; Carnoy & Marshall, 2005) and low levels of both have often been blamed on

---

[57] As in most economics of education literature, spending and expenditure are used interchangeably here.

[58] Differences in EPP are often related to inequalities in property wealth and tax effort among local school districts (rather than to geographical price variations or to student need differences).

"'bureaucratized' public education'" (Carnoy & Marshall, 2005, p.5). Better educational quality not only means higher student achievement and hence more productive workers, but it also means that better educational quality is itself a result of more efficiency in education "mechanism[s]" (Malik, 2009; Carnoy, 2006). In this sense, PPPs often have a "pro-poor" approach (Malik, 2009). According to Feldstein (1998), this should mean focusing on reducing poverty rather than on reducing inequality because in status quo, from a Pareto efficiency perspective, a high income group is made better off (has access to better education) without making a low income group worse off (maintaining little or no access to better education). Theoretically, if PPP programs such as vouchers do provide better educational access to low income groups by making such education more accessible, it would automatically reduce education inequality.

An advocate of school choice PPPs, Moe (1995) acknowledges evidence of a "skimming effect" that can persist where students from relatively well-off families are able to select themselves into relatively higher quality schools. However, Moe (1995) attributes it to program design rather than school choice itself meaning that differences in program design or government regulation can alter this tendency. Yet, although vouchers are specifically designed to increase choice among public and private schools and also (often) to target economically disadvantaged families, Fuller and Elmore (1996) find evidence that the stratification or skimming effect is prevalent across various program designs. This means that in the case of vouchers, PPPs do not necessarily increase horizontal or vertical equity in the distribution of school choice.

It is important to note that although the public sector is often seen as non-discriminating and providing equal opportunities to all, it can intentionally or unintentionally harm the disadvantaged, especially if political interests serve the policy makers to put less pressure on education reform (Harrison, 2005)[59]. This leads the poorest or most disadvantaged group to stay in schools that are not being improved so that the status quo does not change. Another scenario is where public schools are available to wealthier neighborhoods while the government tries to encourage the private sector to cater towards the poorer neighborhoods that lack schools. However, if these private schools charge student fees, it is even more difficult for students from low income households to access schools despite government subsidies. This was the case with the Social Action Program in Balochistan, Pakistan in 1994 that tried to encourage girls to attend schools through its Urban Girls' Fellowship Program where the World Bank provided $3 per girl per month of school attendance (Orazem, 2000).

In the case of the Foundation Assisted Schools program, schools under contract have an enrollment limit so that the argument of free market competition that school choice and PPP advocates push forward (such as Hoxby, 1996) is constrained. This is because despite an effort to increase educational quality, "good" private schools might be forced to limit their enrollment so that some students have to remain in the "less good" private or public schools, thus not fully realizing the equity aspect of PPPs. Moreover, PPP schools might still not increase equity in student achievement because of parental preferences in choosing schools. For instance, parents might choose a lower quality school because they prefer its location or religious orientation to its average student achievement (Goldhaber, Showalter, & Eide, 2004).

[59] For instance, school vouchers might not provide the best results for equity if they either lead to more corruption in the school system (Murnane, 1983) although it is also counter-argued that corruption already exists in school systems (Schmidt, 1995).

Therefore, well-defined equity in PPPs often consists of a trade-off between quantity and quality of education depending on school location (e.g. income-based districts) and program design (e.g. student vouchers versus school subsidies). PPPs in education can even lead to greater inequity if programs, such as student vouchers, are improperly targeted or their amount is insufficient to serve the purpose of allowing low income students access to more private schools. There is also a trade-off between different goals of PPPs - greater efficiency in producing quality education indicated by student achievement can lead to less equity if there is a cream-skimming effect. Other goals of PPPs, arguments for and against them, and their relationships among each other are discussed below.

School Choice

Productive efficiency and equity are also related to the school choice debate where PPPs, especially in the form of vouchers, increase schooling options for students and their parents. Friedman's (1962) writings paved the way intellectually for the support of market incentivized schooling. Becker (1992) is another renowned scholar who advocates school choice because of the inability of public schools to impart required skills to its students. According to the criteria developed by Patrinos et al. (2009), vouchers represent one of the most integrated forms of PPPs that theoretically should lead to more school choice. One stream of literature or "policy camp" that includes business groups, market theorists, policy advocates, religious groups, and entrepreneurs (Powers & Cookson, 1999, p. 105) argues that market driven school choice will cause positive individual and institutional changes, and parental satisfaction (Chubb & Moe, 1990; Finn, Manno, Bierlein, & Vanourek, 1997; Little Hoover

Commission, 1996; Moe, 1995). The other policy camp including school boards, teacher unions, school administrators, policy advocates, liberal foundations, and academics are not as enthusiastic about widespread school choice because they perceive public education as the "cornerstone of democracy" (Powers & Cookson, 1999, p. 105)[60].

Other arguments related to school choice claim that although choice can enhance student learning by allowing families to choose schools that match their needs and culture, this argument by itself cannot justify a voucher plan because choice can be increased within just the municipal/public schools as well (Comer, 1989). Moreover, although parents choose schools based on school quality (assuming that they can afford it because of the voucher), their choice might not give them high utility or satisfaction. This is because the utility from "freedom of choice" can depend on how informed parents' decisions are; consistency of preferences during their child(ren)'s school years; and the extent to which constraints in compulsory primary and secondary schooling and school homogeneity reduce the utility of choice (Vawda & Gauri, 2003). Another argument against parental school choice is that parents will not necessarily make rational decisions for their children (Carnegie Foundation, 1992; Levin, 1991; Bridge, 1978; Wells & Crain, 1992). However, "not all parents need be good shoppers to create the competition necessary to promote educational excellence. All customers benefit from the more careful shopping of what may well be only a small minority" (Flew, 1987, p. 100). Plus parents can quickly learn how to make informed decisions (West, 1996). There are also empirical examples of parents with low education who make rational schooling choices for their children (Fossey, 1994) so that arguments against parental school choice can usually be countered. These

[60] The politics of school choice can be understood systematically under the framework of economic theory of regulation literature (Lamdin & Mintrom, 1997).

rational school choices are not necessarily based on a school's teacher quality or academic results because parental preferences might lead them to rationally choose schools based on proximity, race, and SES of students (Buckley & Schneider, 2002).

By extension, this implies that freedom of choice available to parents also depends on the extent to which the principal (for instance, the Chilean government and then the municipal government) gives autonomy to the agents (schools) to improve their education quality. Another line of literature argues that parents do not necessarily want choice in terms of exiting schools and finding new ones. Rather, parents will first try to "fix a school" before changing it if they feel that student mobility, especially at specific stages in education, can increase dropout rates and lower achievement (Swanson & Schneider, 1999; Hirschman, 1970).

Assuming that parents have perfect information about goods, costs, and benefits, Tiebout (1956) outlines a model where local preferences can be revealed to the local government, for instance, in housing markets. The model can also be extended to schools where parents choose residential districts based on district school quality, where arguably equity and social cohesion issues can also arise if the communities are diverse and/or unequal. Information is a major issue in enhancing school choice because school quality is very difficult to assess (Lamdin & Mintrom, 1997). Moreover, perfect information is a theoretical requirement for education to work as an efficient private good. We have seen earlier that markets fail to meet the perfect information assumption. However, Schwartz & Wilde (1979) argue that schools might have a greater incentive to distribute (perhaps exaggerated) information about themselves in order to attract more consumers. In addition, informed consumers can share their knowledge with uninformed consumers so that it is not entirely true

that information about schools is insufficient and inaccurate although this is arguably more true for high income than low income groups (Schneider, Teske, & Marschall, 2000). Yet, even in the case of imperfect information, school choice can function. This provides a pro-PPP argument although costs of forming and maintaining partnerships might not agree, as discussed in the next section.

Financial cost of PPPs to governments

It is important to note that in the discussion above of PPPs and the advantages/disadvantages of their public and private components, sources of government finance are not examined in detail (except for mentioning taxation as a possible source of funds and discussing control of these funds). Among others (e.g. Patrinos et al., 2009 as mentioned above in their four main PPP objectives), Caldwell and Keating (2009) claim that PPPs lead to "better educational outcomes and at lower costs for government," so that more funds are available to the public sector (Caldwell & Keating, 2009, p. i). Another related argument can be how public provision of a service is financed through distortionary taxes while the private sector or PPP financing will not have this distortionary effect on consumers (Galetovic et al., 2009).

In contrast, the argument that PPPs relieve the government's finance burden can be false because "resources saved by the government upfront when choosing a PPP over alternatives such as conventional provision are offset by the loss of future revenues" (Galetovic et al., 2009, p. 8). In other words, although the government can reduce its own current costs through establishing a PPP, it can also lose its potential future revenues from the service that

now accrue towards the PPP. This shows that it is important to keep a long term perspective when drawing a PPP contract. It is also important to remember that private financing is not necessarily efficient and effective so that ultimately the public sector might have to spend more in rescuing a private provider of education (Valila, 2005; Patrinos et al., 2009). In addition, the distortionary effect of taxation only occurs if the government provides subsidies and not when PPPs are financed by user fees. Moreover, initial government savings through a PPP can be canceled by the opportunity cost of not collecting user fees (Galetovic et al., 2009) so that the argument that PPPs relieve government burden is not necessarily true.[61]

Social capital and Cohesion

Another argument for PPPs is that they provide an increased opportunity for buiding social capital and social cohesion (Caldwell & Keating, 2004; Levin, 1999, 2005). Social capital was first used in the context of school education (Putnam, 2000, p. 19).[62] Social capital can be further divided into bridging social capital (across groups) and bonding social capital (within groups) (Putnam, 2000). School choice itself is considered a "social movement" (Cookson, 1994; Henig, 1994; as cited in Powers & Cookson, 1999) with opposing points of view by multiple stakeholders. According to West (1996), "personal advancement" through school choice enables parents and students to make decisions and contribute towards society. In turn, this individual participation can increase the overall social capital. However, it can be

[61] Transation cost economics is another approach to evaluate PPPs because of how it frames public finances (Brown, 1992).

[62] By L. J. Hanifan, a state supervisor of rural schools in West Virginia, who considered social capital to be "those intangible substances [that] count for most in the daily lives of people: namely good will, fellowship, sympathy and social intercourse among the individuals and families that make up a social unit" (cited in Putnam, 2000, p. 19).

counter-argued that school choice increases bonding social capital and reduces bridging social capital because parents choosing certain private schools are more likely to join parent-teacher associations and interact with other children's parents from the same school (Putnam, 2000; Manski, 2000).

It is assumed that public education is more conducive to democratic and socially cohesive attitudes among students because it provides the basis for "knowledge, values and loyalties that form the foundation of the liberal democracy" (Caldwell & Keating, 2004). However, private schools are also believed to play that role through instilling knowledge and support for civic rights (this is not a new argument and was also outlined by Alves & Willie, 1987). An example of public and private sectors coming together to increase social capital through education is the Education Action Zones in England (Caldwell & Keating, 2004). In contrast, opponents of school choice have also argued that the values instilled by private schools are more ideological and sectarian than egalitarian and democratic (Smith, 2003; Carnoy et al., 2003). Evidence for these claims is mixed. For instance, positive social capital through school choice has occurred more in Catholic schools than non-religious and non-Catholic religious private schools (Backiny-Yetna & Wodon, 2009a). However, there is still too little research to make definite claims.

Moreover, PPPs are becoming increasingly popular where "residualism" is high i.e. public schools are considered a "safety net" for those who do not have access to private schools where the latter are perceived to be important social capital building units (Caldwell & Keating, 2004, p. 19).[63] However, in order to build social capital, both public and private

[63] PPPs can also be related to macroeconomic forces and fiscal policies; however, they are not examined here because of lack of space and because of no concrete relationship (Valila, 2005).

entities in PPPs should follow similar purposes in terms of citizenship and democracy building in schools although enforcing rules to maintain these similar purposes "remains centrally a public task to be pursued according to democratic means and purposes even while seeking efficiencies" (Minow, 2003, p. 1257). Interestingly, a significant portion of the school choice debate has revolved around the ability (or lack of it) of public versus private schools to instill the necessary "basic" skills in individuals to participate in a democratic economy (Lamdin & Mintrom, 1997). In other words, achieving the "good as well as the best" implies public accountability when the public sector partners with private entities, religious or secular, and non-profit or for-profit (Minow, 2003, p. 1259).

One specific aspect of social capital is trust (Pretty, 2003). Trust and its relationships to various concepts can fall into multiple social science disciplines. Within economics, trust can be related to both private and social returns (Oreopoulos & Salvanes, 2009) because it underlies all transactions and agreements. Since PPPs are agreement and contract-based, trust becomes a very significant determinant of their success. From a qualitative perspective, trust increases social cohesion and engagement in the community, which often leads to more cooperation and willingness to help and share information. In turn, schooling is a major influence on the level of trust among individuals (Oreopoulos & Salvanes, 2009)[64]. Helliwell and Putnam (1999) claim that the relationship between schooling (for instance, overall level of attainment) and trust is even causal because it teaches individuals to interact meaningfully with each other and hence increase social cohesion. In this sense, parental educational decision making can indicate parents' level of trust in a given school system or curriculum, which can

[64] See Appendix D for the relationship between schooling and trust.

theoretically be significant in affecting government policy about the types of schools to subsidize.

Overall, social capital and social cohesiveness depends on social interaction and the collective decision making process (Manski, 2000). Public schools are assumed to increase social capital because multiple stakeholders participate in a collective decision making process (Henig, 1994). Whether or not this is true for PPPs remains to be seen. By following the logic for public schools, PPP schools should lead to even more social cohesiveness because there are more stakeholders involved and hence a more complicated collective decision making process is undertaken, which requires a certain degree of trust to be built among these stakeholders.

However, it is important to mention that social cohesion, interaction, and capital are not only goals of PPPs, but also educational outcomes that PPPs can aim for through the education production function. Below is a discussion on if education PPPs have been successful in achieving their specified goals.

2.3.3 - Have PPPs in education been successful?

This question can be answered by using the example of vouchers[65], which are one of the most prevalent forms of education PPPs across the world and have been widely debated. Vouchers are especially significant since much of the PPP and public versus private debate centers around parental choice in schooling (Levin, 1999). Since school vouchers are part of education systems that have a social purpose, it can be assumed that school vouchers aim to fulfill a similar social purpose. We know that this purpose includes increased student

[65] Although vouchers differ in their design from region to region (Patrinos et al., 2009).

achievement, preparing young students for democratic participation in societies (nations, regions, and communities) as well as allowing free choice of schools, such as through a market mechanism (Friedman, 1962; Chubb & Moe, 1990). Vouchers can differ based on how they are financed, managed, regulated, and how much information is available about them (Levin, 1999). When analyzing the feasibility and effectiveness of school vouchers, four main criteria can be used – freedom of choice; productive efficiency; equity; and social cohesion (Levin, 2002; Belfield & Levin, 2003).

If we examine productive efficiency of school vouchers, we should keep in mind that productive efficiency refers to the "maximization of educational results for any given resource constraint" (Belfield & Levin, 2003) from both a micro (within school e.g. maximizing test scores) and macro perspective (overall education system e.g. transportation) (Levin, 1999). At best, the evidence for vouchers has been mixed. Some initial studies (e.g. McEwan & Carnoy, 2001) found that Chilean private voucher schools modestly outperformed public schools depending on how productive and efficient a private voucher school was. For instance, Catholic voucher schools were more efficient than non-Catholic voucher schools. Using cross-sectional data, Mizala and Romaguera (2000), and Sapelli and Vial (2002, 2005) concluded that students in private voucher schools perform better than students in public schools. Low income students were especially found to achieve higher scores after receiving vouchers (Anand et al., 2009).[66] Other studies conducted in the late 1990s and early 2000s do show an annual positive gain in both math and reading scores when comparing voucher schools in Milwaukee to schools outside Milwaukee (Hoxby, 2003; Chakrabarti & Peterson, 2008). Even

[66] The last three references mentioned found a voucher influence of 0.15-0.2 of one standard deviation.

when only the lowest income schools outside Milwaukee are compared to Milwaukee voucher schools, the average achievement gains were positive over 1998-2005 (Carnoy, 2007). Among developing countries, Barrera-Osorio and Raju (2011) studied the FAS program in Pakistan and concluded that the program did help in raising average student achievement in the participating schools.

In contrast, when using longitudinal data and identifying control and treatment groups through a natural experiment in Chile, Mizala and Repetto (2009) found small positive gains (4-6% of one standard deviation) that were statistically significant but not "economically relevant" (Mizala and Repetto, 2009, p. 6). Ignoring selection bias and looking at the overall effect of vouchers, Hsieh and Urquiola (2003) found that there was no significant difference in achievement in voucher and non-voucher schools. The most recent quasi-experimental research shows no difference between voucher schools and public schools in Milwaukee (Wolf, 2011). Another study by Lubienski and Lubienski (2006) examines mathematical achievement using the 2003 National Assessment of Educational Progress (NAEP) and concludes that after controlling for demographic and school characteristics, students in public schools usually outperformed students in private, charter, or Catholic schools (by 7 points in 4^{th} grade and 4 points in 8^{th} grade). They also conclude that in terms of school choice, education policy that encourages private schools should be re-evaluated since parents still mostly choose public schools. Moreover, the market assumption of parental demand leading to higher quality education is also questionable since the fastest growing private school sector – conservative Christian – was also the lowest performing.

Overall, the best research (although research design is still not ideal) finds small, statistically insignificant gains in student achievement as a result of education vouchers (Rouse & Barrow, 2008). More broadly, Goldhaber, Showalter, and Eide (2004) contend that there is little evidence of increased school choice having a significant and conclusive effect on the academic achievement of disadvantaged students in urban areas. Roseaneau (2000) states that this is the case for PPPs in general as well. Studies have also shown that large scale voucher plans in public schools tend to be relatively inefficient in increasing market competition and efficiency in education production. Before making the unqualified claim that vouchers increase competition and efficiency, it is important to determine how much schools depend on voucher funds, especially private schools. It is possible that only a small portion of a school's funds are derived from vouchers so that the school does not have a large incentive to compete for families with vouchers. Moreover, unlike a perfectly efficient system, there is imperfect information for parents (especially low income families) to make the optimal schooling decision (Levin, 1998; Schneider, Teske, & Marschall, 2000).

However, even in earlier studies, since the voucher results were only significant for Catholic schools, efficiency will decrease if macro costs outweigh social benefits. From a macro efficiency perspective, aspects of an efficient overall education system, such as transportation, are also not necessarily available to all families who want to enroll their children in high quality but far off schools (Jencks, 1970; Levin, 1998). Addressing issues of imperfect information, transportation, and regulation can reduce productive efficiency because they might be more costly than the present system (Levin, 2002). These inadequate supporting mechanisms can raise costs and even decrease overall efficiency (Levin & Driver, 1997).

Therefore, implementing a voucher plan in a representative context in the U.S. was estimated to raise public educational costs by 25 percent, and if the associated achievement gain is not significant enough, then a voucher plan will reduce even current levels of efficiency.

Discussions of whether or not a voucher system or a PPP in general is successful somewhat assume that the government is efficient although this is not necessarily true. For instance, "government failure" through corruption, unreasonable levels of bureaucracy, and general lack of training can also prevent the correct formation or at least the correct implementation of voucher programs (Galetovic et al., 2009, p. 10). This can be especially true in developing countries or where education PPPs are established as short-term policies only to gain political appeal (Patrinos et al., 2009). According to Harrison (2005), the political nature of the public sector with its lack of information and incentives, and pursuit of personal rather than collective objectives deems it unsuitable for education provision. This is even more important if the government provides education at a price lower than its cost and if there are no "price signals" that depict consumer preferences (Harrison, 2005, p. 198).

Additionally, often the public agency responsible for designing and allocating the PPP contract, and monitoring it is the same. Galetovic et al. (2009) call this "bad governance" (p. 16) because it leads to conflict of interests (for instance, through the bidding process) as well as inefficient project selection. Lack of proper training of public and private governance institutions for evaluation can also significantly reduce PPP efficiency (Stiglitz & Wallersten, 1999). To counter this, the Commonwealth Government in the 1980s established an "open training market" for both public and private sectors (Caldwell & Keating, 2004, p. 34).

There has also been discussion on whether PPPs in education increase equity in student educational attainment and achievement. Programs such as target vouchers are deemed successful in reducing the gap in attaining quality education especially for girls, disadvantaged, and students in far-flung areas (Angrist et al., 2002; Carnoy & McEwan, 2001). Others suggest that PPP programs that increase choice can lead to greater inequities, at least in the U.S. context. This is especially true if higher income families are able to add to the voucher value to choose an expensive, higher quality school for their children (Levin, 1999). However, this argument assumes that other educational inputs, such as facilities, are provided in the higher quality school whereas that is not necessarily the case. For instance, a cash subsidy program for girls in Bangladesh increased enrollment but the quality of education did not necessarily increase since the number of teachers did not increase (Raynor & Wesson, 2006). Another gap is between rural and urban areas. PPPs have been shown to work more effectively in urban areas than in rural areas perhaps because of greater teacher absenteeism and turnover in rural areas (Orazem, 2000).

Attitudes towards PPPs often depend on individual beliefs and attitudes rather than on actual evidence (Carnoy & Levin, 1985). Often politicians implement policies that they believe the public prefers, such as involving the private sector in education provision. If citizens believe in strong social cohesion and equity, individual, family, and business preferences might not be important considerations. In this sense, there is a dearth of literature on evaluating PPPs from a top-down as well as a bottom-up perspective.

Overall, most of the evaluation of PPPs has been quantitative (for instance, in the 1990s, there were Greene, Peterson, Du, Boeger & Frazier, 1996; Greene, Peterson & Du, 1997;

Rouse, 1998;Witte, 1996a) and not free from weaknesses, such as endogeneity and selection bias, which has led to a methodological debate. The outcome variable is usually test scores or the gain in test scores whereas the background variables (e.g. choosers or non-choosers; minority groups; income strata) are often contested (Witte, Thorn, Pritchard, & Clairborn, 1994; Powers & Cookson, 1999; Rouse, 1998). One weakness of analysis of PPPs in education is its ex-post nature, which does not necessarily lend itself easily to an experimental or quasi-experimental analysis although there are exceptions (such as Wolf, 2011 on Milwaukee's voucher program). However, although there are various ways of trying to separate the causal effects of PPPs (such as vouchers) – Heckman correction models, regression-discontinuity, propensity scores, instrumental variables, difference-in-difference methods, experiments – qualitative analysis at the grass root level is still significant in determining the "real" experience of PPP customers, implementers, and school reform (some past examples include Fowler, 1996; Jimerson, 1998; Rofes, 1998; Wells, 1996). In addition, since there are differences among regions and their characteristics (Eldridge, 2001; Teese et al., 2002 in Australia), different methods can be applicable in multiple areas. In addition, parental preferences might conflict with those of the state – private goals versus public goals (Levin, 1999) - and hence before making a conclusive claim, more contextual analysis is required (Backiny-Yetna & Wodon, 2009), which I am doing through this study.

The above discussion brings us back to the relationship between PPPs, institutions, and economics and if PPPs are or will be successful in education policy making. Galetovic et al.'s (2009) warning about incomplete contracts, especially about risk sharing, is considered significant. According to Roseneau (2000), PPPs can work well in certain situations if they are

well-designed. The important ingredients in making PPP successful include the various stakeholders and their consent – the wide communal sector; the business sector; and a "masterful" government (Mead, 1998) with political will, political feasibility, electoral support, and political constituency agreement enhance the success and survival for partnerships such that important decisions are made at the top (Roseneau, 2000).

The next section briefly describes the specific PPP program that will be the focus of this dissertation's comparison between the three school types (public, private, and PPP schools).

2.4 - Pakistan as a case study of PPPs

By describing the Foundation Assisted Schools program in Punjab, this section aims to build the background of two main questions in choosing to analyze a specific PPP – what is being studied, and what are the performance measures being used for assessment? (Galetovic et al., 2009). In this case, an education-related partnership is being studied through comparisons of student achievement with other school types. The data and methodology chapters (chapters 3 and 4) will build on how the analysis will be conducted.

Rather than a universal school choice program, the Foundation Assisted Schools (FAS) program funds low cost private schools so that students can receive quality education free of cost. The FAS program seems to be a local phenomenon that is restricted to districts (geographical entity smaller than a province). It appears less controversial than a program where the government attempts to increase choice among public schools, such as in the United States. This is because private schools, at least theoretically, already have a choice element whether or not it is practically possible based on factors such as income levels. There is also less

controversy attached to the FAS program because it seems to be closely monitored by its sponsoring government organization (Punjab Education Foundation (PEF)) – at least as far as the general principle of more regulation leading to less conflict is concerned (Galetovic et al., 2009).

Before going into detail about the FAS program, it is important to describe its sponsoring organization – Punjab Education Foundation. Although Pakistan has had education PPPs in all four provinces,[67] the ones established in Punjab and managed by the Punjab Education Foundation (PEF) since 2004 are deemed the most efficient (Malik, 2009). PEF is an autonomous government body established in 1991 that aims to promote education by "encouraging and supporting the efforts of the private sector [technical and financial assistance] in providing education to the poor, through public private partnerships" (PEF, 2009). Through the Punjab Education Act-XII of 2004, public-private partnerships with private schools were encouraged in order to achieve higher quality of education. PEF's self-defined functions can be divided into three broad categories – financial assistance, technical assistance, and any other function assigned by PEF's Board of Directors. Public-private partnerships fall under both financial and technical assistance. For instance, the Foundation Assisted Schools program not only provides subsidies to private schools, but it also provides capacity building through teacher and staff training when the partnership begins. Moreover, PEF's general financial and technical assistance, such as monetary incentives, professional development programs, and school rankings based on student scores are aimed at improving teacher quality and school management.

[67] For instance, through the Punjab Education Foundation, Pakistan Center for Philanthropy, and the Higher Education Commission/USAID.

Financially, as a government body, PEF is primarily funded by Punjab's Ministry of Education although donations and grants form a small proportion of its funds (PEF, 2011).[68] These funds are controlled mostly through PEF's Managing Director. The management is headed by government officials although its field and program officers can also be hired through a private application process. The government officials in PEF can include Punjab Government's administrative secretaries; principal secretaries to the Minister of Education; special Secretaries of higher education and of schools; all Chairmen of Punjab's Board of Intermediate and Secondary Education; and the managing and program directors of PEF. Therefore, from both a financial and management perspective of its programs, PEF seems to be primarily a government, public sector organization. The organization runs several programs simultaneously – Foundation Assisted Schools (FAS); Continuous Professional Development Program (CPDP); Academic Development Unit (ADU); New School Program (NSP); Monitoring and Evaluation; and the Education Voucher Scheme (EVS). EVS is a form of public-private partnership where low income households are provided vouchers to attend certain private schools. ADU is responsible for conducting standardized tests for all programs, which includes Quality Assessment Tests for the FAS program.

PEF's flagship program is the private partner Foundation Assisted Schools (FAS) program. PEF has detailed data about their infrastructure, student characteristics, and their achievement test scores obtained through Quality Assessment Tests (QATs). In 2009, about 1779 schools and about 808,010 students were participating in the FAS program (PEF, 2009). There

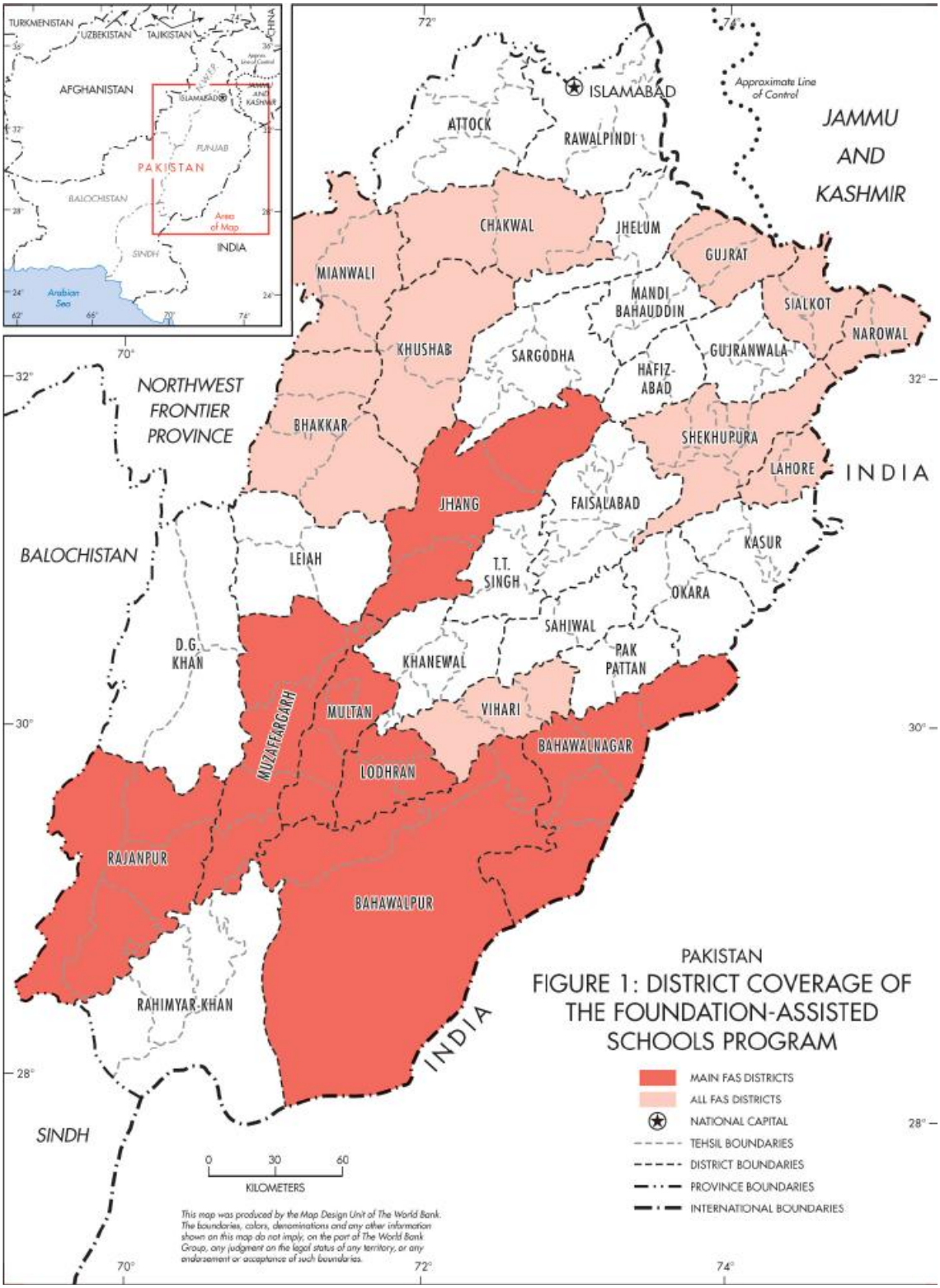
[68] Government policy divides these funds into the following categories: current account; savings account; term deposit account; welfare fund account; special waqf account; general provident fund account; pension and commutation fund account; and endowment fund account. Briefly, a waqf is an Islamic welfare organization and is explained in more detail in chapter 5.

has been a 40-45% per year increase in net enrollment despite PEF withdrawing funding from about 50 schools per year due to schools' low performance on the QAT. If less than 67% of a school's students pass the QAT[69], the school is given a warning as the first penalty. If the same school again shows a less than 67% pass rate in the subsequent QAT, PEF withdraws its funding and cancels the partnership contract.

The FAS program schools are shown by the map below and the following figure. Some districts are more densely covered by the FAS program than others. While the number of FAS program schools has increased overall since the program's establishment, the density coverage over districts has remained about the same.

[69] Passing the QAT means obtaining more than 67% on the test. Funding withdrawal also depends on other PEF requirements, such as a minimum standard of school facilities.

Figure 4 - Location of FAS program schools in Punjab



Source: The World Bank, 2008 as cited in Barrera-Osorio and Raju (2011).

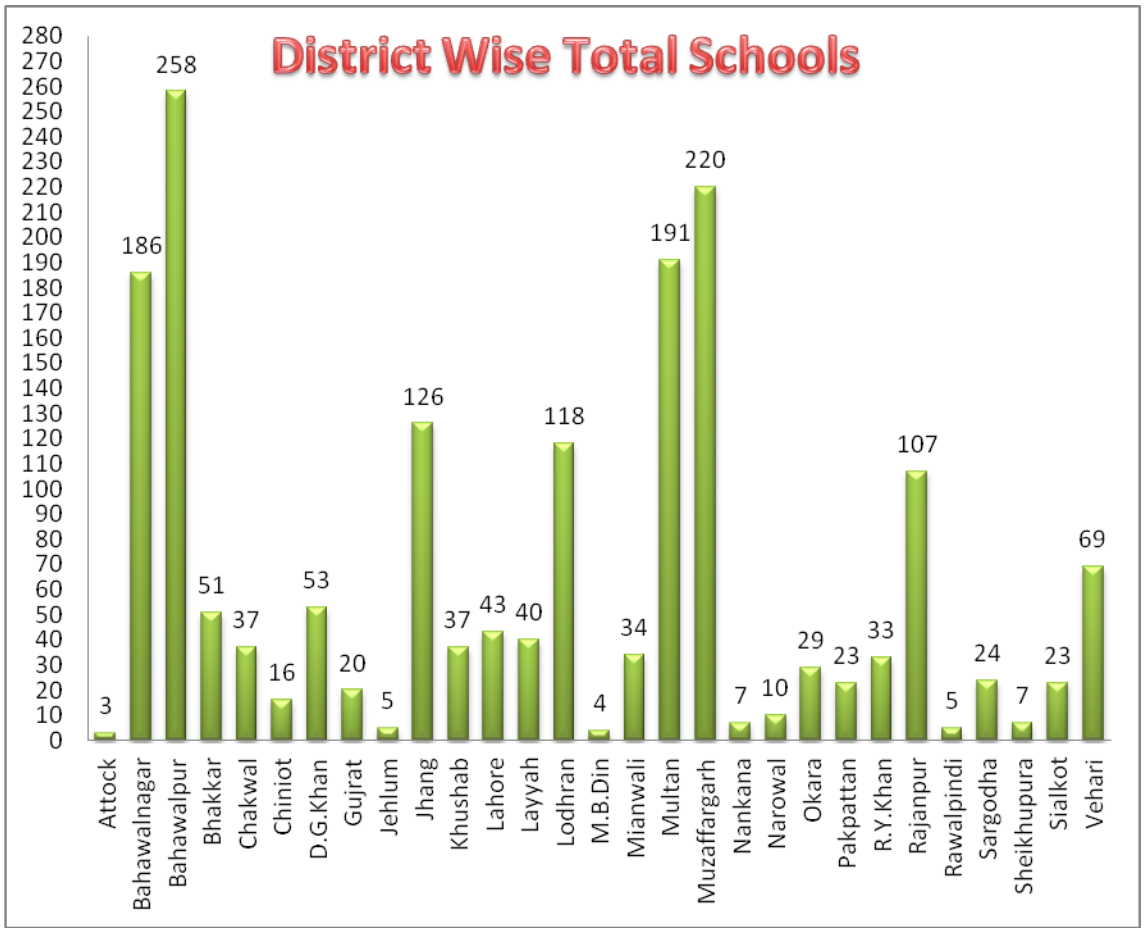
Figure 5 - 2010 District-wise coverage of the FAS program (only for main FAS districts)

Program District	Number of Program Schools	Number of primary, middle, and secondary private schools	Share of Program Schools
Bahawalnagar	186	447	0.42
Bahawalpur	258	871	0.30
Jhang	126	686	0.18
Lodhran	118	284	0.41
Multan	191	1411	0.14
Muzaffargarh	220	690	0.39
Rajanpur	107	226	0.47

Source: Author's own calculation.
Notes: (1) Program school information provided by PEF (2010)
(2) Total number of private school information provided by Corinne Sianes using the National Education Census (2005) quoted in Barrera-Osorio and Raju (2011)

In districts with a high program schools share of all private schools, such as Bahawalpur and Rajanpur, the number of total private schools also tends to be less than in other districts. Since the FAS program considers fewer private schools an indication of a low income district, the FAS program will establish more partnerships in such areas to increase their quality of education. In 2009-10, the FAS program had the following district-wise breakdown (please see Appendix C for more FAS program details about enrollment and phases):

Figure 6 – District-wise FAS program schools in 2009-10



Source: Punjab Education Foundation (2010).

The FAS program has three components – student subsidy, teacher rewards, and monetary incentives to schools (usually principals) to improve academic performance (Patrinos et al., 2009). According to Lara, Mizala, and Repetto's analysis (2009), student-based subsidies to schools act almost like a voucher system because they increase school choice for parents and reduce costs for families. These subsidies can be funded through tax revenue and be allocated to both for-private and not-for-profit private schools (West, 1996). 56% of the schools PEF assists

are rural, 38% are urban, and 7% are in urban slum areas. The districts Bahawalpur, Bahawalnagar, Multan, and Muzaffargarh have the highest concentration of FAS program schools.

PEF focuses on primary (up to grade 5), middle (grades up to 8), and secondary (up to grade 10) schools. It finances FAS for Rs. 350 (~US$4.11) per student per month for primary and middle level students, and Rs. 400 (~US$4.71) per student per month for secondary level students. For PEF to continue its aid to private schools in the FAS program, at least 67 percent of the students in these particular schools have to score above 67 percent in the QAT. There are unstipulated cash incentives for schools and teachers – Rs.50,000 (~US$588) for the best performing school in a district and Rs.10,000 (~US$117.65) each for five teachers in a school where more than 90 percent of students have scored more than 40 percent in the QAT. Schools receiving these subsidies for primary, middle, and secondary school students are not allowed to charge these students for any other school related expense, such as penalties, recreation, field trips, books, stationery etc. Additional programs have been established by PEF to complement FAS but are not included in this analysis. For instance, there is a Continuous Professional Development Program (CPDP) for teachers in both FAS and non-partner private schools (Malik, 2009, p. 13). Overhead and supervision cost of the FAS program is Rs. 19.05 (US$0.22) per student. Monetary transfers to schools are made online through the Bank of Punjab in the specific tehsil/district of the school.[70]

[70] Another school subsidy program in Pakistan was set up by the World Bank's Social Action Program in 1992 to raise girls' enrollment in both rural and urban areas (Orazem, 2000). Considered successful in terms of enrollment and sustainability, its PPP components are different than those of the FAS program and given data for Balochistan's subsidy program, Punjab and Balochistan's programs could have provided an interesting comparison in terms of PPP structures. For instance, one main difference is the continuation of a fixed fee amount (~US$4) per school per

Since this dissertation analyzes student achievement as the dependent variable, it can be argued that the FAS program's academic performance measurements can actually work paradoxically and reduce the overall student learning achievement (van Thiel & Leeuw, 2002). This can be true for various reasons including students and teachers focusing on performing well in only the measurements of quality education (such as QATs)[71] rather than the actual educational quality. Another reason can be the number of performance indicators. For instance, if there are few performance indicators, such as only QATs for the FAS program, then all aspects of high quality education are not necessarily measured, such as teaching quality, curriculum, student motivation etc. In addition, if increasing both quality and equity of education are the objectives of the FAS program, these goals can conflict with each other. This is because if FAS funding depends on how well students perform on QATs, then the private schools can attempt to accept only high performing students, thus reducing equity. In contrast, if a private school attempts to increase equity by accepting disadvantaged students who might not perform well on QATs, it will risk losing its funding from PEF and hence have a lower chance of providing a high quality education. Underlying these performance measurement problems is the largest assumption of all – the quality of education can be measured by student test scores. As van Thiel and Leeuw (2002) argue, measuring performance is one of the most difficult components of public policy.

As described by PEF (2004-12), its foremost aim is to increase the quality of education, which it attempts to monitor through standardized student test scores. Indirectly, this implies that

---

month in the FAS program whereas Balochistan's program tapered off the subsidy until schools became self-sufficient.

[71] The U.S. equivalent would be the substitution of test preparation with instruction for the No Child Left Behind policy.

by providing financial resources to private schools, PEF expects its partner schools to use that funding such that the production of quality education increases. The partnering school has an incentive to increase the quality of education because under economic theory, a profit-maximizing school will want to satisfy its current and future customers. In this sense, it seems that out of the four goals of PPPs, productive efficiency is deemed the most important goal and outcome by PEF and its partnering school.

PPP contracts can be divided into seven main forms – management services; support services; professional services; operational services; education services; facility availability; and facility availability with education services (Patronis, et al., 2009). When studying PPPs in Pakistan through examining the FAS program, I will attempt to categorize its specific contract into one or more of the seven forms mentioned above depending on the contracts' finance and management components (related to bundling and ownership components). This categorization can be useful because it can point towards aspects of PPPs – financial and managerial – that can act as characteristics related or unrelated to student achievement.

Moving forward, the following four chapters examine the two research questions – how school types relate to student achievement, and how Islam relates to educational decision making - from two approaches. For the first research question (spanning chapters 3 and 4), existing information is used to quantitatively compare student achievement in public, private, and PPP schools. The next chapter begins answering these research questions by first outlining quantitative data and variable descriptions before moving onto the following chapter that includes the quantitative methodology and analysis.

Chapter 3 – Data and Variable Description

This chapter sets the background for discussing the relative student achievement of public, private, and PPP schools where student achievement is used as an indicator of school quality[72]. Given that public, private, and PPP schools will be compared in this dissertation in terms of their education quality, it is first important to mention that I do not in any way attempt to establish a causal relationship between any variables in this dissertation. This study is the first step towards only examining a relationship, if it exists, between school types and student achievement in Punjab, Pakistan. The chapter begins by describing data collection and the description of each dependent and independent variable. Then it outlines the empirical methodology I will use, its mechanics, and its suitability for my first research question. Next, the chapter describes some weaknesses in quantitative analysis.

Before operationalizing the theoretical equation that represents the first research question, I describe the data and variables in detail.

3.1 - Data for Quantitative Analysis

The geographic sample will be limited to the Punjab province in Pakistan because Punjab has the most information available on education (both in terms of size and accuracy), especially on public-private partnership schools that are established by PEF. It also has more than 60 percent (CIA World Factbook, 2010) of Pakistan's population (including immigrants from other provinces) so that the findings can be applicable to a significant portion of Pakistan's society.

[72] One of the Punjab Education Foundation's desired educational outcomes.

Moreover, primary schools have a larger student population than higher level schools because of a high dropout rate from one level to the next (about 60 percent from primary to secondary education, and about 80 percent from secondary to higher secondary; Ministry of Education, 2011), especially in rural areas. Therefore, in order to exploit as many observations as possible, both primary and secondary schools are part of the analysis.

Almost all rigorous studies on student learning and achievement use or attempt to use student level data especially because it enables the analysis to control for household and family characteristics that could otherwise potentially bias the result(s). However, this study examines school level learning and achievement data because of student level data unavailability in Pakistan, which also leads to issues of model specifications. Hence the results should not be interpreted according to the criteria of causal inference. Although standardized test results are collected for each student through Quality Assessment Tests in the case of PPP schools, and through the Punjab Examination Commission (PEC) in the case of all public and private schools[73] including PPP schools, test scores[74] are aggregated at the school level while specific student scores are not always stored (personal communication, AEPAM[75], August 27th, 2010). Other school based studies include early studies of Chile's voucher program with data up till 1997. These studies showed varying results. For instance, Carnoy and McEwan (2000) showed that Catholic private vouchers performed better than public schools rather than non-religious private voucher schools. However, Mizala and Romaguera (2000) concluded that when a

[73] Although participation in PEC exams is mandatory, not all private schools take these exams. However, all PPP schools in the FAS program have participated in PEC exams.

[74] Compatibility of these test scores is not necessarily a straightforward issue so that only Punjab Examination Commission test scores are used for the quantitative analysis.

[75] Academy for Education Planning and Management (AEPAM) based in Islamabad, Pakistan.

comprehensive set of controls was used, there was no significant difference between public and private subsidized schools. This dissertation examines a school organization model that works similarly to a private subsidized school in a public-private partnership so that one reason why this dissertation is important is to see whether or not findings from other countries are similar to findings from Pakistan. Consequently, although not ideal, school level studies can at least point in some future research directions.

For the first part of the quantitative analysis in Punjab, I create a dataset combining various data sources that are described below. School level data can be obtained from 3 main sources – the National Education Census 2005 (NEC)[76]; Punjab Examination Commission (PEC); and the Education Management Information System (EMIS) managed by Punjab government's Program Monitoring and Implementation Unit (PMIU).

The Punjab Examination Commission's (PEC) data covers all public and private schools in Punjab (more than 70,000 and more than 30,000 respectively). PEC designs its own standardized subject tests for English, Mathematics[77], Urdu, Social Studies, Islamic Studies, Elective Subjects (Natural Sciences, Social Sciences, and Humanities), and Arabic (only for 8th grade). These tests are based on the state-mandated Punjab Textbook Board. The number of schools that are covered by PEC might be less than the actual number of public and private schools because of differences in school registration, the number of schools that might have shut down or been "ghost" schools, and incomplete private school participation (partly because students have to pay out-of-pocket to take PEC exams). In contrast, the number of students

[76] NEC has been conducted once so far in 2005 and covers all of Pakistan including its four provinces and northern tribal regions. It is not used in this analysis because it could not be matched with other datasets and also because measures would have to be aggregated at a very high level, preventing useful interpretation of results.

[77] A sample Mathematics test matrix is provided in Appendix E.

taking the PEC examination could be more than the students registered through public or private schools because some students take the exam privately and not through a formal educational institution. However, these private candidates are excluded from this dissertation's analysis.

PEC's exam is administered by PEC representatives, and students are assigned individual ID numbers and are divided into exam centers, which are then aggregated to the "markaz," union council, tehsil, and then the district level. For the purposes of this dissertation, the PEC data that could be obtained are 2008 onwards. In my analysis, I use the PEC 2009-10 examination scores. This is mostly because first, the electronic databases for the FAS program schools (the treatment group) are available only for 2009-2010. Databases for previous years have been destroyed through a technological fault and the database for 2011 is still under construction (PEF, personal communication, October 10th, 2011). Second, the 2009-10 PEC information is more detailed in terms of the type of information presented (for instance, the 2009-10 PEC information includes standardized and adjusted exam scores whereas the previous PEC's exams did not).

The EMIS database is managed by PMIU and covers all public schools in Punjab (more than 70,000). It includes details about schools, such as enrollment, school facilities, teacher characteristics etc. There are two time frames for the EMIS database. One is their monthly monitoring reports and the other is their yearly "census" reports. The yearly census contains more information than the monthly monitoring report and according to PMIU staff, is also more accurate than the monthly monitoring reports because they are validated (personal communication, September 10th, 2011). This could be possible because for instance, if a teacher is absent during a particular month's monitoring but is usually present in the classroom, the census will capture this more accurately because it will take the different months into account as

well. Therefore, for the analysis in this dissertation, I use EMIS yearly census data rather than its monthly reports.

Although there is EMIS that contains school information, as well as other government bodies, such as Punjab Education Assessment System, there is barely any similar data source for private schools. The only relevant and more recent sources I am aware of that collect private school data is the National Education Census in 2005, and PMIU that is expanding its functions to also obtain more information about private schools (partly from the School Education Department). The National Education Census cannot be used because of its different coding system (as detailed earlier) so that the only source we are left with is what the PMIU has collected. For the year 2009-10, PMIU has validated information for all private schools in Punjab, which is another main reason for using 2009-10 data from all sources.[78] This information includes the same indicators as for the public school variables so that it is easier to merge this data with students' PEC exam scores.

For PPP schools, information about the FAS program schools is obtained from the Punjab Education Foundation's FAS program department. This information includes data from the FAS monitoring reports of various schools conducted throughout the year. The monitoring report collects data on various school characteristics, such as school facilities and enrollment.

[78] For 2011, so far, seven districts' private schools' information is available. The seven districts whose private school information has been collected include Faisalabad, Bhakkar, Khanewal, Jhang, Nankana Sahib, Toba Tek Singh, and Hafizabad. Out of these, only Bhakkar and Jhang have a somewhat high proportion of PPP schools, which is the main treatment. The total private school sample for these seven districts is about 7400 schools. Moreover, since data is still being collected, matching EMIS codes have not yet been assigned so that schools in the private school database in PMIU, and private schools from the PEC database have to be matched with school names. Since there could be duplicate schools if this method was adopted simply even if I first sorted the schools by political division (district, tehsil etc.) as well as by gender and enrollment, the sample was drastically reduced (from about 7400 to 1039 for grades 5 and to 8). In turn, several key observations might have been excluded where the only difference was in spellings in PEC versus PMIU private schools data. This is an additional reason why 2009-2010 data were used versus more recent data from 2011.

Electronic information from only 2009-2010 is available since past monitoring report results have either been destroyed or lost while reports from 2011 have not yet been completely compiled. Since FAS program schools have also participated in PEC exams, I matched each program school with its corresponding entry in the PEC and PMIU databases to gather consistent data. This was done manually because FAS codes did not match with either PEC or PMIU codes for private schools. Moreover, the school specifics from PEF are fewer than the specifics available from PMIU. To include further information about FAS program schools as well as to check its accuracy, PEF's information about school and community specifics is again validated against that information available from PMIU. For this, I went through all FAS program schools one by one to match them with the private schools available from PMIU. This was significant because often school spellings did not match among the different datasets so that matching through statistical software would not only have been incomplete, but would have also yielded a reduced and biased sample from the FAS program schools. Through a manual check, the schools and their information from PEF, PEC, and PMIU almost always overlapped perfectly and more information about school characteristics could also be attached to FAS program schools.

As a summary, information about test scores and covariates will be obtained from the following sources: 1) Test scores – Punjab Examination Commission (PEC); 2) Enrollment Information of all schools – PMIU; 3) Enrollment information of PPP schools – PMIU (cross-checked with FAS monitoring reports); 4) School characteristics – PMIU (cross-checked with FAS monitoring reports); 5) Teacher characteristics – PMIU (cross-checked with FAS monitoring reports); and 6) PMIU (school committee characteristics).

3.2- Sample Description

Overall, the sample is 100,260 schools (primary sampling units or PSUs) in 132 tehsils (strata) set in a survey design. For the first part of the empirical analysis, public and private schools are matched using propensity-score matching (described in more detail in the next chapter) to ensure that the control and treatment group share similar characteristics, such as school location, gender, medium of instruction etc. After mapping the propensity scores of both control and treatment groups, it is clear that after a propensity score of 0.65, only private schools are part of the treatment group. Therefore, I dropped observations after a propensity score of 0.65 when there was hardly any overlap. The remaining sample included 72,454 schools (primary sampling units) in 125 tehsils (strata) where the ratio of the number of public to private schools remained the same as in the total sample of 100,260 schools. For the second part of the empirical analysis, public and FAS program schools are matched using propensity score matching. This matching yields 53,162 schools (primary sample units) in 124 tehsils (strata). Descriptive statistics for each matched sample (public-private and public-FAS) are in Appendix A. The operational model being used in this dissertation is described in the next section.

3.3 - Operational model

I use the following theoretical equation:

$$Average\ School\ Test\ Score\ (T) = a + S + I + F + P + C + e$$[79]

where *S* stands for school background and institution characteristics including school type, medium of instruction, registration status, urban/rural, and school age; *I* stands for school

[79] Individual level characteristics cannot be used since they are not stored by the government collection agencies.

infrastructure including school facilities; *F* and *P* stand for faculty/teacher and student/pupil characteristics including sanctioned minus filled teaching posts, teacher-student ratio, % male teachers, total enrollment, % boys enrolled; *C* stands for community characteristics including school management committees; and *e* is standard error. Dependent and independent variables are described below in more detail.

3.3.1 - Outcome variable – average school test scores.

Ideally, I would use both education quantity and quality as dependent variables to see how school choice can be related to both measures. This is because some studies have shown that PPPs and school choice affect one variable more than the other, often depending on location. For instance, Cullen, Jacob, and Levitt (2005) showed that school choice in Chicago affected school completion rates to some extent but not overall student scores. Education quantity can have various measures – enrollment, years of education, school completion, dropout rate, repetition rate, and current enrollment status for children of school going ages. Another possibility is to use an index; a variable closely related to dropout rates – school completion – has sometimes been used as an index rather than as a continuous or discrete variable by itself. Another example can be an age and gender-specific schooling index, such as in Birdsall (1982), where the index is the ratio of child schooling to mean child schooling in a particular age-gender group. Jamison and Lockheed (1997) have also used deviations from the mean schooling as the dependent variable.

However, such specific student level data for dropout rates is not available so that a dropout index cannot be created for this dissertation. Moreover, the only education quantity

information available in detail is school and class enrollment. Data about repetition, dropouts, and transfers is not available so that student-level analysis is very difficult. Even more significantly, longitudinal data is not available because even if the same schools are in the database, they have a different identifier code every year and this difference is not systematic so that there is no way of knowing which identifier code belongs to which school. These data issues force the dissertation to focus on education quality measured by average school test scores rather than education quantity.

Average school test score is a continuous dependent variable[80]. It is calculated through the Quest software using Rasch Modeling (Punjab Examination Commission (PEC), http://www.pec.edu.pk, accessed December 21st, 2011). Scores are assigned to students through a criterion referenced system. Since PEC's standardized exams also include open-ended questions, PEC is moving its conceptual framework of designing and grading exams from Bloom's Taxonomy (Bloom et al., 1956) to Structure of observed learning outcomes (SOLO) Taxonomy (PEC, 2011; Biggs & Collis, 1982). This is because according to some literature (e.g. Biggs & Collis, 1982), Bloom's taxonomy of asking questions of varying difficulty levels does not represent a student's actual mental growth. In contrast, SOLO Taxonomy can help to classify the varying quantity and quality of student responses to the same questions.

For the purposes of this dissertation, I use PEC's original scores (I standardize them myself later) rather than adjusted scores because the adjustment process itself is dependent on various factors and does not necessarily provide an accurate result. Moreover, there is not a large difference between the original versus adjusted scores so that association with other covariates in

[80] I standardize test scores for the empirical analysis.

the analysis is easier to discern if original scores are used rather than adjusted scores that already depend on other internal or external factors (AEPAM, 2011).

School test scores are available for English, Urdu, Mathematics, Islamic Studies, Social Studies, and Science. Until 8th grade, Science refers to a subject combining Physics, Chemistry, and Biology. Converted from a logit scale, 50 is the maximum score for each subject, which is then again converted into a 0-100 scale (in percentage point terms). Test score distributions are described Appendix B. Estimations through empirical analysis focus only on Math, English, Urdu, Islamic Studies, and Science because of three main reasons – one, Social Studies is a subject that is more emphasized after grade 5 so that it is not included in the analysis; two, international standardized test scores, such as PISA and TIMSS[81] also focus on languages (albeit not Urdu), Math, and Science; and three, the consequence of PEF revoking the partnership if partner schools do not pass the QATs does not depend on Social Studies scores. Islamic Studies is included in the analysis because of its significance for the second research question in this dissertation, which relates student achievement and Islam.[82] Therefore, the analysis conducted in this dissertation focuses on English, Mathematics, Urdu, Science, Islamic Studies, and the total test scores.

3.3.2 - Explanatory variables

School, teacher/student, and community characteristics are described in this section. School characteristics mostly deal with school type, school age, location, medium of instruction,

[81] PISA stands for Program for International Student Assessment and TIMSS stands for Trends in International Math and Science Study.

[82] Of course, the actual curriculum and teaching besides just the school's mission are significant factors in determining scores in Islamic Studies.

registration status, infrastructure (classrooms, electricity etc.), and level of education (primary, secondary, high etc.).

School type is public, private, or public-private (i.e. a FAS program school). There are separate variables for a school being private in general, and a school being a FAS private program school. School location is either urban or rural. The medium of instruction in a school has three categories in reality – Urdu, English, and Urdu-English. Among both public and private schools, the dominant language of instruction is Urdu while Urdu-English medium schools come next. Urdu is the dominant language possibly because of it being the national language and also because many of the curriculum books available from the Punjab Textbook Board are written in Urdu (personal communication, Secretary of Basic Education, October 10th, 2011). As far as Urdu-English medium schools are concerned, they refer to the languages subjects are taught in (for instance, Islamic Studies, Natural Sciences, and Mathematics can be taught in Urdu or English depending on the school's preferences); and language to be spoken in school (the official policy in these schools prefers English although children still converse among each other in Urdu and some teachers feel comfortable mixing Urdu with English). Additionally (based on class observations, interviews, and personal experience), essentially even English medium schools function like Urdu-English schools because they still often teach some subjects in Urdu (e.g. Islamic Studies) and students and teachers also converse in Urdu. Therefore, school medium is categorized as 0 for Urdu medium and 1 for English and Urdu-English medium.

Some infrastructure variables have three categories – for example, electricity is available (value of 1), unavailable (value of 0) or is in the process of becoming available (value of 3). I use the third category – under process or in need of repair – as taking on a value of 1 because I

assume that it should not affect initial school choice since in all probability, parents (if they are passive citizens) will keep their children in the same school if they believe in an eventuality (e.g. electric wires being fixed) (Minow, 2003; Hirschman, 1970). Registration status also has three categories – unregistered, registered, and registration under process. Registration under process (a value of 3) is turned into a 0 because the school year started with the official registration status as still unregistered. Therefore, most school characteristics are dummy variables and take on values of 0 or 1 except school age, which refers to the duration of a school's establishment.

Primary and middle school levels are dummy variables that take on 2 values – 1 if a school is at a primary level (up to 5^{th} grade) or middle level (up to 8^{th} grade) and 0 otherwise. For public schools, all school levels indicate that the school also includes younger levels; for instance, a middle school (even if it is on a separate campus) will also include classes up to grade 5 and will not be restricted to only 6-8^{th} grades. For private schools, the same is true except possibly for higher secondary schools that are considered to be colleges. The FAS program in 2009 mostly funded only primary and middle schools so that the analysis in this dissertation will focus on these two levels, especially since PEC scores are also available for primary and middle levels of education (5^{th} and 8^{th} grades).

Teacher characteristics include the total number of teachers, and the number of sanctioned and filled teacher spaces in public schools. Out of the last two variables, I created a third that calculates the difference between the number of sanctioned and filled teachers to more closely capture teacher shortage in public schools, if any. Other teacher-related variables were the percentage of male teachers in a school, and the student-teacher ratio. According to Card and Krueger (1992), teacher qualification can be significant in influencing student test scores.

However, the information about teacher qualifications, measured by the highest academic degrees attained by a teacher, was not included in most 2009 datasets although it is being collected in 2011[83]. Student characteristics included school size (total school enrollment) and percentage of male students in 5th and 8th grades.

I created interaction terms using the following variables – medium of teaching/learning, school type, 5th and 8th grade enrollments, sanctioned/filled staff, school location, student-teacher ratio, school area, and partnership status (FAS program school or not). However, these interaction terms are not presented in the empirical analysis because they were non-significant. Community characteristics are important to include as covariates because the social interaction between parents/community and schools can also be a form of public-private partnerships (Levin, 1999). For public schools, the public-private partnership is represented by school committee members. Community characteristics available from the PMIU data include information about school management committees (SMCs) that are mandatory for at least all each public school. Functional or not, these SMCs consist of various community and school members – parents, general stakeholders, teachers, and a chair person. There are various SMC measures, such as the yearly number of meetings, total members, parent and teacher members etc,[84] [85]. For private schools, public-private partnerships community information is unavailable

[83] I also tried the empirical analysis by forming a school SES index using the school covariates and infrastructure variables. Some of the main explanatory factors, such as the student-to-teacher ratio for private schools, were especially important in the factor analysis because they explained a large proportion of "uniqueness" so that I used these variables separately in the models instead of in an index.

[84] I also constructed an index that looks at community involvement in a school by conducting factor analysis for the school council variables. Out of these, the number of meetings, number of women, and number of teachers were the most important variables in the estimation results. Therefore, instead of using the community involvement as an index, I use the SMC-related variables individually.

although in reality, these PPPs can be represented by parent-teacher meetings, school fairs, events for parents (such as the Annual Day), workshops to train parents how to complement their children's learning, open house events etc. (although data for these are not available). A measure for socio-economic status was available at the aggregated tehsil level and although it was first used in the analysis, it is not presented in the final quantitative analysis because its level of aggregation prevented the useful interpretation of its estimates.

Using these variables, the specific methodology employed to conduct the empirical analysis in this dissertation is discussed in the following section.

3.4 – Methodology

What exactly is the treatment that the first research question is analyzing in terms of how school types relate to student achievement? In general, there are two treatments - being a private school or being a PPP school (that is, a school participating in PEF's Foundation Assisted Schools (FAS) Program). Being a PPP school has two steps – being a private school and then being a FAS program partner school. More specifically, participating in the FAS program implies that these PPP schools already have certain characteristics and receive other ones through the FAS program. For instance, before becoming partners, FAS program schools have to meet certain criteria – a minimum enrollment of 100 students (35 at the primary, 45 from 6^{th} to 8^{th} grades, and 55 from 9^{th} to 10^{th} grades) and a maximum of 500 students; a minimum number of facilities (this requirement is not fixed and is less stringent than the facilities requirement after

[85] I assume that the influence of PPPs' institutional characteristics is captured by the school type variable because these are part of the treatment of choosing to be in a FAS program school. Ideally, it would also be important to include a variable that specifies student or household identity, such as citizenship, so that we can examine the association between a possible citizen identity (which can measure social capital and cohesion) with the type of school chosen, and with test scores (Allcott & Ortega, 2009).

partnership); and a passing average school score on an initial test administered by PEF. This initial test is simpler than the Quality Assessment Tests that partner schools later have to take to ensure a certain level of educational quality as measured by student test scores. Both the preliminary and QATs are based on the state curriculum decided by the Punjab Textbook Board. In this sense, there are 3 initial components of the treatment of a PPP school – enrollment, facilities, and a minimum level of student achievement. After becoming partners, the treatment becomes more specific and the conditions include – a minimum of 100 and maximum of 500 students; a certain standard of physical facilities; and a 67% of students passing the QATs.

Ideally, conducting an experiment or utilizing a natural experiment (if there is a policy that converts public/private schools into PPP schools) where it is possible to identify participating schools, would be considered to yield the most accurate results because the experiment will lack endogeneity and selection bias. Although there are criticisms of even this gold standard of randomized controlled experiments (such as problems associated with their successful implementation, replicating the study on sub-groups, and mistaking externality for exogeneity (Deaton, 2009))[86], it is still considered the best available evaluation method for policies (Duflo & Kremer, 2003). Since the information used in this dissertation is not from a natural experiment, the study is designed as an exploration where the treatment has to be constructed. In comparing school types and their relationship to test scores, I will conduct ordinary least squares as well as propensity score matching analysis in a survey design.

Ideally, an additional, multi-level descriptive analysis using hierarchical linear modeling (HLM) should also be conducted for each village/union council/tehsil/district/other geographical

[86] This mistake is not necessarily corrected by RCTs because since "exogeneity is an identifying assumption that must be made prior to analysis of the data, no empirical tests are possible" (Deaton, 2009, p. 12).

division separately to validate results from other analyses[87]. However, the number of observations per geographical division (the only usable division is a tehsil), especially for FAS partner schools, is too small to produce valid results. Moreover, HLM is most useful if student, family, or classroom data are used, which is unavailable for this dissertation. Although instead of HLM, dummy variables for each village/other geographical distribution can be used in the OLS analysis, it can not only get cumbersome, but it will also neglect to incorporate unobservable factors that can be common at varying levels of management. Therefore, although it can be an area of potential future research, it is not feasible to include the HLM analysis in this dissertation because it would not provide results very different from the OLS analysis. Identifying the specific factors that can increase or decrease educational achievement will be based on existing literature (e.g. Carnoy et al., 2005, 2007) and will include institutional/school background (public vs. private or FAS program school, rural or urban, medium of instruction, school age, and registration status); school infrastructure and facilities; teacher (student ratio, total number of teachers, % male teachers); student (total enrollment, % of boys); and community (school committee, SES etc.) characteristics.[88]

Since there can be possible selection bias (such as parents selecting a PPP school over a public one due to unobservable factors) in studying the relationship between schooling inputs and output, I will use propensity score matching as the empirical methodology. Propensity score

[87] Pakistan has several different levels of school management – village, union council, tehsil, markaz, district, and provincial.

[88] Literature has shown some characteristics to be more important than others in determining student achievement. For instance, school expenditure, resources, and class size are often not found to be as significant as teacher quality (Hanushek, 1995). However, school characteristics will be included in the analysis because they are being tested in a new context and because evidence exists of their significance in developing countries, such as Bolivia (Urquiola, 2006).

matching is useful in addressing the self-selection bias issue (although it does not necessarily deal with endogeneity) and is described below.

Methodology - Propensity score matching

Propensity score matching (Rosenbaum & Rubin, 1983) seems to be one of the best available techniques to use given the first research question and to counter selection bias. Since I compare PPP schools with non-PPP schools and data are not available longitudinally in the national education census, it is not possible to determine past and current average school test scores. Therefore, schools have to be matched on certain observable characteristics. The technique will be reliable if a student and school's unobservable or unavailable attributes, such as convenience (measured by indicators, such as the average distance from its students' households and by available facilities) or family size do not influence the school's average test score and whether or not a student enrolls in that school. However, if a student is enrolled in, for instance, a primary-only school rather than a school that goes up till the secondary level, it can say something about the student's family characteristics and preferences (Lara, Mizala, & Repetto, 2009). Therefore, selection bias (as well as endogeneity) will exist if an unobservable or unavailable characteristic not only affects which school is chosen, but also affects the outcome (the average test score of that particular school).

Propensity score matching (PSM) attempts to reduce the selection bias by creating a counterfactual, which is what test scores private schools would have achieved if they had similar characteristics as those of public schools. PSM calculates the average treatment effect on the treated (Angrist & Imbens, 1994; Heckman, 1979). The average treatment effect is calculated

within the common support area. Although I do not claim causality in this empirical analysis, the average treatment effect acts as a jumping board for further research by serving as a technique to further understand the possible relationship between school types and test scores.

Essentially, a propensity score is the probability of belonging to a treatment group (e.g. Rosenbaum & Rubin, 1983). Each observation in the dataset is assigned a propensity score according to which it is assigned into a treated or untreated group. This also solves the computational problem of otherwise matching on covariates that might be multi-dimensional or time-lagged (Ashenfelter, 1978; Dehejia & Wahba, 1999). Calculating a propensity score implies that if conditioning on a vector X_i of covariates can solve the selection bias problem, then so can calculating a propensity score $P[T_i = 1| X_i]$ where T is treatment status of whether or not a school is private (Rosenaum & Rubin, 1983). The school covariates that public, private, and PPP schools are matched on include school location (rural/urban); total enrollment and % boys; number of total teachers and % male teachers; student to teacher ratio; medium of instruction; school facilities (e.g. electricity, sewerage, drinking water, toilets, library, playground, laboratories etc.); number of classrooms and open-air classrooms; school area and covered area; school education level; registration status; duration of school's establishement (i.e. age of school); and school management committee characteristics.

The propensity score is determined over intervals of equal number of schools between both public and private schools. If the propensity score is different for the intervals, the interval is sub-divided (that is, the number of schools in each interval is reduced). This is repeated until the propensity score is the same for both types of schools. This is also known as the Balancing Property Hypothesis (Mocan & Tekin, 2004). Further, the means of each variable that the

schools were matched on are calculated and if they differed, higher order terms of that variable and/or interaction terms are tested until the means are similar for both public and private schools. In this case, schools were matched closely on some covariates, such as school location, and not closely on others, such as registration status. Tables 3 and 5 in Appendix A provide a summary of school covariates after matching.

Similar to regression analysis, matching assumes ignorability, which means that selection bias stems from the observed covariates of units; however, the difference is that regression estimates treatment effects through a linear function whereas matching looks at individuals with the same covariates. Mathematically, the conditional independence assumption for causal inference through matching can be written as:

$$E[Y_{ij} \mid X_i, T_i] = E[Y_{ij} \mid X_i], \text{ for } j = 0,1$$

where Y is the outcome test score, X is a vector of covariates, and T is the treatment status of 0 = public school, 1 = private or FAS program school.

This means that:

$$E[Y_{1i} - Y_{0i} \mid T_i = 1] = E\{E[Y_{1i} \mid X_i, T_i = 1] - [Y_{0i} \mid X_i, T_i = 1 \mid T_i = 1\}$$

$$= E\{E[Y_{1i} \mid X_i, T_i = 1] - [Y_{0i} \mid X_i, T_i = 0] \mid T_i = 1\}$$

And similarly:

$$E[Y_{1i} - Y_{0i}] = E\{E[Y_{1i} \mid X_i, T_i = 1] - [Y_{0i} \mid X_i, T_i = 0]\}$$

which provides the average treatment effect.

I used the nearest-neighborhood matching method to calculate the propensity score. This method was chosen among other propensity score methods (kernel matching, radius matching, Mahalnobis matching, and interval matching) based on multiple factors – sample size, research

question, number(s) of treatment(s). For instance, in this dissertation, there is one treatment at a time so that Mahalnobis matching is not an ideal choice since that focuses on multiple treatments. Moreover, the size of the private school sample is much smaller than the public school sample so that matching with replacement ensures a reasonable size since it allows one observation to be matched to multiple observations instead of being removed from the matching pool after one match. Nearest-neighbor matching is also preferable to other matching methods because it assigns a weight to the closest matched observation versus other observations so that matching becomes relative, which is useful in seeing the extent and accuracy of the match and hence increase balance.[89]

The overlap between treated and control groups in shown in Appendix B. More specifically, matching public and private schools through propensity score matching reduces the overall sample size from 100,260 schools to 72,454 schools due to non-overlap although the proportion of private school to public schools remained the same. Matching public and FAS program schools reduces the sample to 53,162. The sample sizes are still relatively large enough to hope that the law of large numbers will allow estimates to approximate those of the population (Baum & Katz, 1965). I primarily use data from the 2009-10 academic year since that had the most comprehensive and validated information with the least amount of missing values among all datasets. However, where cross-sectional data is available for 2005 onwards, for instance through EMIS and PEC, a separate analysis for each year can be conducted to compare the results with the cross-sectional analysis. This can be an area of potential future research.

[89] In Pakistan's case, control and treatment schools did not have very different distributions of observable (and perhaps unobservable) characteristics so that they were all included in the analysis (Allcott & Ortega, 2009).

The propensity score matching method is only one of the techniques used to account for selection bias. Other methods include the Heckman correction method. However, given the assumptions of the Heckman correction method (normality is the most significant assumption; Heckman, 1979), they are not met in data so that propensity score matching provides a better alternative. One of these assumptions of the Heckman model that makes propensity score matching method more attractive is that of having a significant block of observations in the two extremes of the normal distribution, which can lead to nonlinearity (Inverse Mills Ratio) (Puhani, 2000). Estimates from the Heckman correction model are sensitive to these non-linearities while propensity score matching methods are not (Drake, 1993). In other words, even if models are not correctly specified in terms of their dimension(s) or parameters, the results of estimates and the average treatment effect are not directly or significantly influenced by propensity score matching. Since the treatments of being a private school or a FAS program school are dichotomous variables, their parameters are not simple to gauge or define. This makes propensity score matching a more suitable method compared to Heckman's correction method.

One of the problems associated with propensity score matching is that estimating the propensity score itself can have issues in terms of which variables the two groups are matched on. For the purposes of this dissertation, I used all available observable school covariates; however, unobserved variables are still unspecified and unaccounted for, such as school management, parental preferences, PPP contract etc. (Ashenfelter & Card, 1985). Propensity score matching might also inflate the standard errors by assuming equal sample sizes of control and treatment groups. Another frequent weakness of this method is that it can drastically reduce the sample size. Since more than 70 percent of my sample was retained after the public-private

matching (with the same ratio of private to public schools) and about 50 percent was retained after the public-FAS program matching, the sample size should not be a weakness, which makes propensity score matching a feasible strategy to use.

The quantitative methods and data can be wrought with many other weaknesses and biases as well, especially since student level data is unavailable for this dissertation. These weaknesses and biases, and possible solutions are described in the next section.

3.5 - Challenges to comparing achievement

Unobservables and omitted variable bias

Although several PPP schools are oversubscribed and enrollment has to be limited[90], the basis of limiting enrollment is unclear (one possibility is keeping only students who score above a certain amount in the standardized tests or who pass the admission test). If the basis of limiting enrollment is unbiased, provided the motivation to apply for a PPP school was unrelated to test scores, the scenario would have resembled a natural experiment (Allcott & Ortega, 2009). However, since there is no student level data available, it is difficult to exploit the possibility of an exogeneous school choice.

In addition, it is not possible to identify schools that were previously purely private and are now PPP schools because available data are only "post-treatment"[91] and do not differentiate among school types or duration of school establishment to such an extent. Movement into and out of the treatment group is somewhat fluid because based on QATs and other school facility

[90] However, starting in 2011, PEF does not have a maximum enrollment cut-off although there is still a minimum requirement of 100 students in a school.

[91] Therefore, it is possible that the conversion of private schools into PPP schools was not random.

requirements, partner schools are either included or excluded from the FAS program schools. Excluded schools can re-apply for the next phase of FAS program applications. Yet, the data available for this dissertation do not provide a comprehensive, longitudinal list of school status (i.e. partner or not partner over time). Hence using an accurate identification strategy is the only solution for a credible exploratory analysis.

More about Unobservables

As mentioned earlier, after becoming partners, these FAS program schools have to pass QATs to ensure their continued participation in the program. For this reason, these treatment schools possibly have other components in their treatment that might not be available in other private or public schools – a more rigorous curriculum-teaching methodology than other private and public schools, better quality teachers, and a more dedicated and diligent administration. This is possibly related to the management aspect of the education provision. Although the curriculum is the same as that of other schools, FAS program schools usually emphasize English, Mathematics, Urdu, and Science because these are the subjects QATs are based on (personal communication, PEF, September 5th, 2011). At least until 8th grade when students have no electives, we can assume that compared to public and other private schools, FAS program schools in general place more emphasis on subjects that QATs also emphasize. However, this might not be true for other elite private schools, such as Lahore Grammar School (LGS, personal communication, September 14th, 2011). Yet, this emphasis is difficult to measure unless principals and teachers of each school in the sample are interviewed and classrooms are

observed. This was not feasible given the limited scope and scale of this dissertation – although I did have discussions with some school principals - but is a potential area of future research.

Since administration effort is also unobservable except perhaps employing better quality teachers and/or maintaining school facilities, teacher quality is the only treatment component that can potentially be observed through, for instance, teacher qualification. Moreover, teacher motivation is related to teachers' confidence in their ability to teach, which in turn can raise students' motivation and performance (Hoy, 2000). However, non-FAS program schools can also engage teachers with similar qualifications so that the difference – if there is a difference – can lay more in teacher motivation and effort rather than qualification. This is especially because of the teacher and school incentives offered by the FAS program (the FAS program is described in more detail at the end of chapter 2).

Therefore, post treatment (i.e. after becoming partners), teacher and administration engagement as well as curriculum are unobservables since it is unclear which direction the association follows: treatment leading to student achievement or student achievement forcing certain aspects of the treatment. This leads to endogeneity in the quantitative analysis.

Selection bias

Selection bias is one of the inherent problems for econometric analyses. Deaton (2009), and Dulfo and Kremer (2003) agree about the problems inherent in using non randomized evaluation methods, specifically large and unknown biases resulting from selection issues or specification errors. One reason for this, as mentioned earlier, is that in retrospective non randomized evaluations, omitted variables can be a major source of inaccuracy in findings and

conclusions (Duflo & Kremer, 2003). Another potential source of this selection bias is schools' participation in the FAS program because it is possible that only private schools in urban areas have access to information about the FAS program. However, FAS program schools are selected from a pool of applications that is fairly representative of all private schools in Punjab. This is because PEF advertises its program each year in a way (almost all media sources and local agencies etc.) that all schools have an opportunity to apply including schools in rural areas that might not receive newspapers with these advertisements because there is "strong networking among schools" (FAS, personal communication, October 3rd, 2011). This enables almost all private schools to be aware of the FAS program although schools that do apply for FAS program partnerships are still self-selected perhaps based on their registration status and location (rural/urban).

Moreover, although higher teacher salaries in public schools are supposed to attract better quality teachers, selection bias can occur because certain teachers might want to choose schools that already have higher achieving students (due to reasons ranging from family background[92] to self motivation to peer effects), have lower enrollment, have the teacher incentives offered by the FAS program, and have students that are easier to discipline.

Another problem, especially for evaluations conducted over time, is attrition where participants in either the control or treatment group drop out or transfer schools. This is even more problematic if the dropout rate is different for the control versus treatment group. Attrition not only changes the sample size, but it also biases the sample if those who drop out or transfer share a certain non-random characteristic. In this dissertation, the sample is scaled up to the

[92] *Class and Schools* (Rothstein, 2004).

school level; however, since we are examining school choice, various types of students in their specific schools can share characteristics that students in other schools do not. The lack of information about these characteristics increases selection bias.

Parental preferences can also lead to selection bias. Parents who are more aware of the qualities and reputations of schools or have access to more information will have an advantage in trying to enroll their students in those schools. Parents who have strong connections are also in an influential position to have their child(ren) attend a school of their choice. Controlling for selection bias resulting from parental preferences is very difficult in this dissertation because there is hardly any student or household level data available.

Ability based bias

Another limitation related to selection bias that Lara, Mizala, and Repetto (2009) mention when evaluating Chile's voucher program (related to school choice) is "ability based selection." This can occur because schools are familiar with students' abilities and hence can "sort" and choose whom to admit so that it is not a random assignment to voucher schools. This bias in Chile is higher in older grades (8^{th} and 10^{th}) versus in 4^{th} grade (Lara, Mizala, and Repetto, 2009). While this can be a problem in secondary schools in Pakistan's sample, public primary or even middle schools who have students up till 5^{th} and 8^{th} grades have to admit all applying students. However, this could pose a potential selection problem in some private schools where applying students often have to take school admission tests and interviews. This could be more prevalent in some FAS program schools that have to maintain a certain test score level in order to continue receiving funding from PEF. Yet these low cost private schools also have to maintain

a minimum level of 100 students so that schools do not always have a choice about whom to admit if they want to increase enrollment and retain their partnership status. Conversely, after becoming partners with PEF, FAS program schools have to cap their enrollment at 500 students even if the new applying students have higher ability than the current students.

In addition, parents of students who have higher abilities or are self motivated could approach private subsidized schools with the perception that these schools will have higher educational quality and hence improve their children's academic achievement (selection bias). Moreover, although identification strategies including propensity score matching assume perfect knowledge on behalf of the parents and clear preferences for private subsidy or public schools, that is not necessarily the case. When parents enroll their child in kindergarten or first grade, there is even more uncertainty (for themselves, for schools, and for researchers) about their preferences and motives so that school assignment is not necessarily random.

Using the "survey" command in Stata

When it comes to the technical aspects, I use Stata 11 to specify that data is from a survey so that several problems that could be exacerbated by specifying data as randomized can be avoided. For instance, if we specify data as randomized, standard errors might be underestimated, which can lead to statistically significant results but these results will not be significant if data is used as a different sampling design e.g. survey.

The elements of using a survey design can include sampling weights, post-stratification weights, strata, and replicate weights (if PSUs and strata are not used)[93]. Using data from NEC

[93] http://statistics.ats.ucla.edu/stat/stata/seminars/applied_svy_stata11/default.htm

and EMIS does not need sample weights since principal sampling unit is the school where all schools are included. Sampling is done with replacement where all school cases are unique. Strata can depend on the level of analysis that we are interested in – village level, urban level, tehsil, or district. In this case, tehsil is the stratum of interest. However, again, all strata (and not a sub-sample of strata) are used. This reduces inaccuracy in point estimates and in standard errors.

The above case is true if in reality all schools are included in the data. This is not always possible because of missing data due to lack of information or in the case of private schools, perhaps not all private schools have participated in PEC exams in 2009. The latter is unlikely because PEC participation is mandatory or even if some schools have still managed it to avoid it, that sample is very small and unrepresentative of the overall school types (it usually consists of the elite private schools; PMIU, 2011). However, unlike experimental or quasi-experimental data, idiosyncratic observations due to, for instance, analysis of a subpopulation (e.g. only female public schools), are not deleted in a survey analysis. This is because although idiosyncratic cases are not used in the analysis, they are used in calculating standard errors.

Missing Data and measurement error

Another limitation of this dissertation's analysis could be using a dataset that can have observations missing for one or more variables, as well as measurement or reporting error. Missing data and measurement error can occur because of various reasons – unreadable information; inaccessible schools (because of, for instance, security issues); school principals providing incorrect information about school results and facilities; schools being open or closed

during the data collection process; students or teachers being absent during collection (hence affecting enrollment and student-teacher ratio) etc. In this dissertation, measurement error is assumed to be negligible although it is important in interpreting the findings. The missing data problem is exacerbated because various datasets have been merged so that even for the same schools, different variables can have missing values. Moreover, if data is obtained from different agencies, such as PEC, PEF, and PMIU, all individual data might be of higher and lower quality. Simply dropping the observations with missing values will drastically reduce the sample size and also bias the data towards certain types of schools. Therefore, missing data analysis or data imputation (depending on how much of it needs to be imputed) might yield different, more representative, or even more robust results.

In this dissertation, I have used imputation by chained equations (ICE) for the multiple imputation method. This is especially true for variables (and not observations) that have a high proportion of missing values. Multiple imputation means using different datasets for the analysis where each dataset has different imputed values for variables with a high proportion of missing values. It is assumed that data is missing at random.[94] Moreover, multiple imputation method for missing data does not mean multiple results because results are combined to provide one estimation table. ICE is useful because it is intuitive and does not assume multivariate joint distribution (Royston, 2004)[95]. It also does not require a very large sample size although that is not an issue here because I am using all schools in Punjab. This method is also advantageous

[94] In this dissertation since many datasets are used, it is possible that these missing values might not be random in terms of the collecting agency's efficiency. However, all the collecting agencies used in this analysis validate their results so that missing values can be considered random and not due to the skills of a particular agency.

[95] I also tried to conduct propensity weighted regressions; however, it did not give significantly different results than from multiple imputation.

because it shows standard errors based on the uncertainty in the analysis due to missing values. However, weaknesses of ICE include more mathematical rather than theoretical soundness, as well as the possibility of conditional densities incompatibility (Allison, 2002).

While most observations had imputed values for variables, some observations were not included in the analysis, as described below.

Exclusion of Data

Data that is excluded from the analysis are the observations that are listed as only "Private" because these observations refer to private student candidates that might or might not be enrolled in school but still participating in PEC examinations. Since the analysis is at a school level, these observations are not relevant or desired because they can bias results since they are not associated with any school covariates.

Chapter 3 has discussed data sources, variable descriptions, and the propensity score matching methodology, all of which are combined - and the weaknesses of quantitative methods kept in mind - in the following chapter to conduct the empirical analysis in order to answer the first research question.

Chapter 4 – Results - School Type and Student Achievement

This chapter begins the empirical analysis based on the data description and methodology outlined in the previous chapter. Through the empirical analysis, I attempt to answer the first research question, which aims to explore the relationship between student achievement and the three school types (public, private, and public-private partnership (PPP)) schools. In doing so, I first describe the comparative achievement statistics of the three school types. These statistics in turn set the background for more detailed comparisons through propensity score matching. Next, using the empirical methodology, all three school types – public, private, and PPP – are compared with respect to their relationship with test scores. This comparison is especially significant because results can potentially inform government policy about which school type is most efficient at producing high quality education. This can have further implications about which school type the government should encourage. The chapter ends with a discussion of the findings with a focus on PPP schools. This discussion is continued in the last policy-related chapter that synthesizes answers to both research questions.

As emphasized in earlier chapters, I do not suggest causal inference through the empirical analysis but rather this is a preliminary exploration of how public, private, and PPP schools in Punjab, Pakistan, relate to student achievement. Before discussing results from the empirical methodology, I present comparative descriptives of test scores from the three school types in the next section.

4.1 - Descriptives of Dependent Variables

The dependent variables are student test scores – total, Math, English, Urdu, Islamic Studies, and Science for 5th and 8th grades. Almost all subject scores pass the normality test conducted visually through histograms, and box and whisker plots (Appendix B). Histograms are more useful for presenting scores by intervals while box plots are more useful for detecting outliers. Test scores for 8th grade follow a normal distribution more accurately than 5th grade scores. Islamic Studies scores falls most neatly into the normal distribution curves versus other subjects. A W-statistic through the Shapiro-Wilks test was also calculated that showed that the dependent variables are normally distributed.

When public and private schools in the overall sample are compared, private schools always seem to perform significantly (statistically) better than public schools shown by their higher test scores (8th grade Math is the only exception). Please see Table 1 in Appendix A. Total scores in 5th grade for private and public schools have an average of -0.041 and 0.065 standard deviations respectively. The smallest difference between private and public schools in 5th grade scores is in Math (0.023 standard deviations) and the largest difference is in Islamic Studies (0.122 standard deviations). Private and public school scores for 8th grade are -0.008 and 0.012 standard deviations respectively. Unlike all other subjects, 8th grade Math scores do not seem to have a significant difference between the two school types. Moreover, the largest difference in public and private school scores is in Urdu and Science (0.024-5 standard deviations) perhaps because of more qualified or motivated teachers or students who want to perform well so they can take the 9th and 10th grade Punjab Board examinations otherwise only taken by public school students.

Among all school types, FAS program schools score the highest in all subjects for both 5th and 8th grades. However, the difference is lower in 8th grade than in 5th grade. Science is the highest scoring subject and Math is the lowest scoring subject. Between languages, schools score higher in Urdu than in English. Comparing FAS program schools with non-FAS program schools, the difference in mean score for all subjects is much greater than the difference in mean scores between private and public schools. Moreover, unlike private schools, all differences between FAS and non-FAS schools are significant.

The next section describes test score differences between public and private schools after both school types have been matched on various school characteristics, such as school infrastructure and background, teachers, and student characteristics etc.

First Matched Sample – Public and Private schools

After matching, private schools have higher average test scores than public schools for all subjects as shown by Table 2 in Appendix A. The 5th grade mean total scores are -0.040 and 0.106 standard deviations for public and private schools respectively. Islamic Studies is the highest and Math is the lowest scoring subject in both grades. Mean scores in 8th grade are -0.010 and 0.026 standard deviations for public and private schools respectively. This shows that although small in absolute terms, test scores differences according to school type are generally larger in 5th grade scores (about 0.146 standard deviations difference in 5th versus about 0.036 standard deviations in 8th grade). Moreover, the difference in private and public school test scores is least in Math for 5th grade and in Urdu for 8th grade.

After attempting to achieve balance, independent variable descriptives in the public and private school matched sample are shown in Table 3 in Appendix A. The next section continues with test score differences after public schools have been matched with FAS program schools.

Second Matched Sample – Public and FAS program schools

The mean for 5th grade total scores is -0.015 standard deviations for public schools and 0.521 standard deviations for matched FAS program schools (Table 4, Appendix A). Compared to test score differences between public and private schools, test score differences between FAS and public schools are significant and larger[96]. Overall test scores for FAS program schools are also higher then test scores for private or public schools. For instance, in 5th grade, English has -0.012 and 0.407 standard deviations for public and FAS program schools respectively. The lowest scoring subject in this case is Math for both public and FAS program schools and the least difference in test scores is in Math (0.189 standard deviations).

Mean total scores in 8th grade are -0.007 for public schools and 0.253 for FAS program schools. Again, 8th grade test scores in general are higher for FAS program schools than private or public schools. Moreover, the difference between FAS and public school total scores is more pronounced for grade 5 than for grade 8 (0.535 and 0.260 standard deviations respectively). There are two additional points that are important to consider when comparing differences among school type. One, reasons for higher FAS program school total scores could include FAS

[96] The minimum scores in 5th grade for private and FAS schools are usually greater than in public and non-FAS schools respectively. However, the maximum can be greater for other schools – private or public. Yet in the case of 8th grade scores, FAS schools have both a higher minimum and a higher maximum total score (versus FAS and non-FAS schools respectively). Greater minimum scores for FAS program schools could potentially show that FAS program schools help the weakest students to perform better (who would usually score lowest on tests) while the best performing students might be self-motivated to study well so it does not matter much which school type these students attend.

program schools choosing to admit high achieving students or high ability students choosing to apply for a FAS program school, thus leading to selection bias, which can allow FAS program schools to score higher in general. However, it is also true that the average enrollment for each FAS school in the matched sample is less than the maximum 500 allowed by PEF (Table 5 in Appendix A)[97] so that these private schools may enroll more students in order to maximize profits. This will mean that FAS program schools might not use a student's academic performance as the main criterion for admission so that selection bias from the school's side is reduced even if sources of selection bias - applying students have certain family and/or student characteristics – continue to exist. Two, although I have provided student achievement in standard deviations, test scores are used in percentage points to determine how a student has performed in a given test. In percentage point terms, relative to other subjects, Islamic Studies is the highest scoring subject among all school types although it is neither a subject that is tested by the FAS program, nor is it the determining subject for a student passing a certain grade. It will be interesting to see if the empirical PSM analysis in the next section also shows a unique behavior of Islamic Studies test scores.

4.2 - Propensity Score Matching Analysis

As outlined in the previous chapter, the samples being used have been created through the propensity score matching (PSM) method where public-private, and public-FAS program schools have been matched on multiple covariates including school gender, location, facilities etc. Dependent variables include all subject and total scores for grades 5 and 8. The main

[97] School covariates for the second matched sample are described in Appendix A, Table 5.

independent variables of interest are being a private school, and being a FAS program partner school. Analysis is done separately for each independent variable of interest so that first the overall relationship of a private school with school scores can be seen, and then the relationship between a more specific type of private school (i.e. FAS program school) and subject scores can be examined.[98] Each subject is also analyzed separately because there can be differences in the facilities, teacher experience, and student background among subjects. The next section deals with the first treatment – being a private school.

4.2.1 - Private schools propensity score matching analysis

In conducting this chapter's first empirical analysis, I use the matched sample (72,454 schools obtained through public-private propensity score matching). This section first presents the 5th grade full sample estimations subject-wise and then does the same for 8th grade.

5th grade

Standardized total test scores are regressed on school background, school infrastructure, student, teacher, and school community characteristics (Table 6, Appendix A)[99]. The variable of interest is whether or not a school is private. Results show that being a private school is associated with an increase of 0.119 standard deviations in total 5th grade test scores. In terms of

[98] There is sufficient evidence in the literature (Alderman et al., 1995) to suggest that test scores as well as responses to treatments can differ between boys and girls. Although schools in the current data were registered as either male or female, enrollment figures showed co-ed schools. This prevents a gender-specific analysis although it is an area for possible future research.

[99] I only present the final models in the empirical results tables because coefficients are often consistent across models and also because models are the same for total and subject scores although different specifications were tested beforehand.

other school background characteristics, a school in an urban location is associated with an increase of 0.045 standard deviations in test scores. If English is the medium of instruction – which is true for more private schools than public schools – total scores will be 0.105 standard deviations higher than than scores from Urdu medium schools[100]. 5th grade scores are also higher if a school is only a primary level school versus going up to higher education levels. A registered school gains about 0.082 standard deviations over an unregistered school. Registration status can be difficult to interpret because although almost all public schools and FAS partner schools are registered, all other private schools might not be registered. Therefore, a positive coefficient for registration status can imply that the school is high achieving regardless of school type.

Out of school infrastructure variables, only drinking water, having a playground, electricity, sewerage, number of toilets, and a new construction (toilet, classroom, repair) have significant (and negative) coefficients while a library has a positive and significant coefficient. Having a library in the school can facilitate learning so that it has a positive coefficient (0.09 standard deviations). One reason for the negative relationship of the first six variables with student test scores could be that construction mostly occurs in low scoring public schools that are often in need of repair. Another reason could be that amidst disturbances created by new construction, students find it difficult to study and teachers find it difficult to instruct so that student scores can be influenced adversely. Some high-achieving students might even transfer from one school to another to avoid disturbance. Parents making school choices can also base them on facilities rather than a school's average achievement. Moreover, it is important to look at past achievement in schools to see if resources are being focused more on schools that are low

[100] I added an interaction term between school type and medium to the model; however, it was not significant and did not contribute sufficiently to explaining the variance so I excluded it from the final model.

performing. If this is the case, then adding school resources will not immediately show a positive association (Hanushek, Rivkin, & Taylor, 1996). In addition, there could be measurement error in terms of misreporting (Hanushek, Rivkin, & Taylor, 1996) by principals and school personnel, especially in the case of private schools that are not monitored by the government.

A one standard deviation increase in student-teacher ratio is associated with a 0.007 standard deviations increase in total test scores. A one percentage point increase in male teachers is associated with a 0.037 standard deviations increase in total test scores. This implies that male teachers can help students to perform better in tests perhaps because female teachers are not as highly trained (Andrabi et al., 2010) or because they face difficulty in maintaining class discipline. A one percent increase in the number of boys in a school is associated with 0.014 standard deviations increase in total test scores. This could be because an increase in the total number of students can imply generally reducing class size and hiring more teachers, or because boys score higher in 5^{th} grade scores than girls.

The coefficient for the percentage of teachers among school management committee (SMC) members is 0.0132 standard deviations, showing that he or she might be able to better guide SMC members about a school's needs and hence help in raising test scores. The other significant school committee variables are its total number of members and meetings both with a negative coefficient, maybe because overall, the school committee is not very functional or useful to meeting student needs.

Coming to subject scores, coefficients for private schools among all subject scores are positive and significant. Being a private school has the highest coefficient for Islamic Studies scores followed by English (0.130 and 0.102 respectively) while Math has the smallest

coefficient (0.047). The small private school coefficient for Math scores can exist because of the belief in innate ability versus school's value added, which teachers can reinforce as well (personal communication, PEF, December 4th, 2011). Lara, Mizala, & Repetto (2009) discuss the same issue for Chile[101]. Coefficients of independent variables for Islamic Studies scores are usually lower or less frequently significant than coefficients of independent variables for other subjects. Being an English medium school seems to matter most for English and Urdu subject scores (0.070 standard deviations). School infrastructure and teacher characteristics exhibit similar trends as in the case of total test scores (negative coefficients for infrastructure except library; positive and negative coefficients for percentage of male teachers; positive coefficient for student-private ratio). School size (i.e. total enrollment) does not show a consistent pattern and neither do school committee members (except the percentage of teachers). For instance, the percentages of female and parent committee members have a positive association with Islamic Studies test scores while the opposite is true for Science test scores where the percentage of male committee members have a positive association.

From the above discussion, there are some trends that are clear. Private schools are always associated with higher score than public schools. Registered schools, schools with more male than female teachers, English-medium schools, primary schools, and urban schools also tend to perform better than unregistered, schools with more female teachers, Urdu-medium, higher education level, and rural schools. School age is non-significant.[102] Having a library in the school is always associated with higher test scores. However, all other infrastructure types are

[101] Chile is comparable to Pakistan only if it is a low or lower middle income country.

[102] This could imply that longer established schools perform better on PEC exams perhaps because of more experienced teachers, a well-designed curriculum, better infrastructure etc. Conversely, the positive coefficient for school age can be negated if, for instance, the same curriculum or teachers follow outdated practices.

almost always negatively related to test scores. Male teachers tend to perform better than female teachers and the higher the percentage of teachers in the school committee, the higher the test scores.

Besides these patterns in coefficients and significance, it is important to keep a few things in mind. One, generally the coefficients for each variable, including the variable of interest, are small in magnitude. Second, the amount of variance explained is small for all subject and total scores. This might change if another identification strategy, such as instrumental variables, is used or if there are other covariates. However, given the data, these adjusted R-squares are the highest possible I could obtain through the propensity score matching method. Third, negative coefficients for some variables, such as school infrastructure, some school committee members, and total number of teachers, can be because of various reasons – for instance, omitted variables, such as family background that can potentially influence school choice, and/or community regulations regarding expenditure. Moreover, these models should not be considered fully specified. Instead, the empirical analysis in this dissertation is an attempt to only add to understanding about school types in Punjab's context and does not predict school effects.

The next section discusses the relationship between 8^{th} grade test scores and independent variables because it can help to see whether 5^{th} or 8^{th} grade scores are more strongly related to private schools.

8^{th} grade

The most important finding from this analysis is that the coefficient for private schools is non-significant (Table 7, Appendix A). This is in direct contrast to 5^{th} grade findings where the

same coefficient for the variable of interest was positive and significant. The other main finding is that coefficients for all variables are much smaller now than they were for 5th grade. For instance, an urban school is related to a 0.019 standard deviations increase in total test scores while English as a medium of instruction is related to a 0.072 standard deviations increase in test scores (versus 0.045 and 0.105 respectively for 5th grade scores). Among school infrastructure variables, new construction, electricity, toilets, and a playground have negative coefficients while a library and school area have positive coefficients. A larger school area perhaps means more classrooms, more labs, and more teachers, which are all considered related to greater educational attainment and by extension, student achievement (Hanushek, 1995). Student-teacher ratio is positively related to total test scores. An increase in sanctioned minus filled teachers is negatively related to total test scores, which is intuitive because it means that the number of teachers in public schools is less than required by the government. The percentage of male teachers is positively related to a 0.031 standard deviations increase in total test scores implying that male teaches perform better than female teachers for reasons discussed earlier (e.g. more trained and better able to maintain class discipline). The coefficient for percentage of boys in a school is now negative and significant for total score, meaning that girls often tend to score higher than boys in 8th grade[103]. Among school committee members, the percentage of teachers has a positive association with total test scores of 0.011 standard deviations.

Moreover, the coefficients for private schools are also non-significant for all subject test scores. No school covariate is consistent in its direction of the coefficient (positive or negative)

[103] For instance, boys tend to be more "rowdy" and not only pay less attention in class, but also make it more difficult for others to study (Fennema et al., 1990; personal communication, PEF, November 14th, 2011) and girls tend to score higher in some subjects (Skaalvik & Rankin, 1994; Younger & Warrington, 1996).

and significance except medium of instruction, student-teacher ratio, percentage of teachers in school committees with positive coefficients, and new construction with a negative coefficient. This implies that there is no specific trend about boys scoring consistently higher in all subjects (unlike 5th grade trends), hence agreeing with other research that depicts girls performing better than boys academically in some subjects (Skaalvik & Rankin, 1994 on Norway; Younger & Warrington, 1996 on Britain).

In addition, 8th grade models explain even less variance (have even lower R-squares) in test scores than 5th grade models. Since there is a high dropout rate from the primary school level (up to 5th grade) to middle school (up to 8th grade), a possible assumption is that students who do not drop out are self-selected, which can contribute towards selection bias because of individual and family backgrounds rather than school characteristics. There can also be selection bias because private schools themselves might have certain criteria for admission, such as an academic admission test. However, in large private schools, there can be an incentive to enroll more students to maximize profits. These are possible reasons why empirical analysis in this dissertation, which focuses on school attributes, is not able to capture most of the variance in 8th grade test scores.

So far, the empirical analysis section has discussed private schools as the variable of interest in order to then move onto discussing public-private partnership (PPP) schools as the main variable of interest. This means that the treatment is schools belonging to the Foundation Assisted Schools (FAS) program while the control group is public schools[104]. These two school

[104] Another example of propensity score matching to look at effectiveness of PPPs in education was conducted by Allcott and Ortega (2007) (as cited in Patrinos et al., 2009) on 2003 cross-sectional data from Venezuela. Results showed that PPPs were associated with 0.08 standard deviation increase in Math and 0.1 standard deviation increase in verbal test scores.

types were matched because since they are both publicly funded, they can have policy implications in terms of which school types the government should support financially and managerially.

It is possible that the next section will show higher coefficients for FAS program schools, especially since there was also a greater difference between FAS and public schools test scores than between private and public school test scores. I expect that adding FAS program schools as a treatment variable (1 if a school is a FAS program partner; 0 if not) will solely or at least mostly capture the association between test scores and FAS program schools[105]. This means that the coefficient for a FAS program school can possibly capture the relationship of tests scores with unobservable characteristics of being a PPP program (the treatment). In reality, these characteristics might be observable through interviews or in-person visits to these schools. Although I did briefly interview some principals of FAS program schools, their answers will mostly help in discussing results of the empirical analysis rather than using the unobservables they mention (such as management and teacher quality) in the statistical models due to lack of available data. This can be a topic for future research that asks for principals' and parents' views of unobservable characteristics, such as teacher motivation and management efficiency. I attempt to reduce the gap of such understanding, at least to a small extent, later in the dissertation through my second research question dealing with parental school choice.

The next section discusses being FAS program schools as the main variable of interest.

---

[105] Part of the reason is that public schools have already been matched with FAS program schools. Another reason could be that facilities will most probably not differ vastly between public and FAS program schools because FAS program schools are already required to maintain a minimum level of facilities (similar to the policy for public schools).

4.2.2 - FAS program schools propensity score matching analysis

5th grade

When average school total test scores are the dependent variable, being a FAS program school is associated with a 0.537 standard deviations advantage in test scores (Please see Table 8 in Appendix A). This is in contrast to results from the previous section where a private school in general estimate was smaller (0.119 standard deviations) in test scores. This implies that the FAS program school coefficient possibly captures the relationship of unobservable characteristics of these PPP schools that are different from both public and overall private schools.

This implication can be reinforced by similar i.e. mostly unchanged coefficients, directions, and significance of other school covariates compared to when private schools were the variable of interest. For instance, if a school is urban, the coefficient in both types of analyses (for private school as the treatment and the FAS program school as the treatment) is 0.047 and 0.055 respectively. An English medium school is now associated with a 0.086 standard deviations increase in FAS program total test scores. New construction, which can be a disturbing factor because of the various forms it can take – flooring, storage spaces in classrooms, blackboards, furniture for students and staff, toilet facilities, drinking water fountains, gates etc. (PMIU, 2010) – has a negative coefficient of -0.098. Other significant infrastructure variables include number of classrooms, a playground, drinking water, number of classrooms, and number of toilets with negative coefficients and a library with a positive coefficient. The student-teacher ratio, percentage of male teachers in a school, and the number of teachers in public schools are also significant. Among school management committee (SMC)

members, an increase in the percentage of teachers and number of total members are respectively associated with positive 0.016 and negative -0.017 standard deviations changes in total test scores. Interestingly, the percentage of men in SMCs is positively and significantly associated with test scores. Again, these trends are similar to those for private schools and hence show that the hypothesis stated earlier seems to be confirmed – the increase in test scores associated with FAS schools seems to be because of their own unobservable PPP characteristics.

Different subject scores exhibit varied relationships between a FAS program school and average subject test scores. In Math, being a FAS partner school is expected to increase test scores by 0.204 standard deviations while being a private school is only associated with a 0.022 standard deviations increase in test scores. Other subject test scores also behave similarly – for instance, English test scores are associated with a positive 0.433 coefficient for a FAS program partner. The coefficient for a school being a FAS partner school is the lowest (0.310) for Islamic Studies and the highest for Science (0.630). Other than these differences, coefficients for other covariates show similar patterns although they can differ slightly in terms of which school infrastructure or school committee member – men, women, total members etc. – are significant for individual subjects.

Overall, all coefficients for being a FAS partner school are positive and significant, and larger than coefficients for being a private school. However, the extent of test score variance explained (i.e. adjusted R-square) by adding FAS program schools into the analysis is smaller than the adjusted R-square when private schools were the variable of interest. 8^{th} grade scores are analyzed next in the following section.

8th grade

The main finding for 8th grade total scores is that being a FAS partner school is positively and significantly associated with test scores unlike when private schools were the main variable of interest, which had negative and non-significant coefficients for 8th grade test scores. On average, FAS program schools can score about 0.245 standard deviations higher than a similar (matched) public school. (Table 9 in Appendix A). Among other school background characteristics, English as a medium of instruction is associated with a 0.031 standard deviations increase and an urban location is associated with a 0.016 standard deviations increase in total test scores. From the school infrastructure variables, new construction, school area, number of classrooms, and a playground have negative coefficients and a library has a positive coefficient. The student-teacher ratio is positively associated with 8th grade total test scores while a higher percentage of boys has a negative coefficient. Among school committee member variables, the total number of members has a coefficient of -0.004 and the percentage of men in the committee has a coefficient of -0.006 whereas only the percentage of teachers is positively associated (0.012 standard deviations) with a one standard deviation change in test scores.

Subject-wise, similar to 5th grade, Islamic Studies shows the smallest association of being a FAS partner school with test scores (0.158 standard deviations) while science test scores show the largest association (0.212 standard deviations)[106]. While coefficients of other independent variables have no consistent pattern of variation among subjects, the R-square for Math is higher than for other subjects.

[106] Islamic Studies is again unique in its behavior. Previously, it also had the highest test scores among all subjects.

In general, the scale of magnitude, significance, and ranges of how being a FAS partner school is positively associated with test scores are less for 8th grade versus for 5th grade. This difference could potentially be because 8th grade students who have not dropped out after 5th grade can be somewhat self-motivated or have different family backgrounds than other students who have dropped out. This further implies that students in 8th grade rely less on school characteristics to perform well in tests than students in 5th grade whose scores are more strongly related to school type. Yet, it is still interesting to see that although being a private school was not significant for 8th grade scores, being a FAS program school is both positive and significant for 8th grade scores.

Given the above results, the utility of the previous empirical analyses through propensity score matching versus an ordinary least squares (OLS) analysis is still questionable because the upward bias in OLS estimates can be canceled by the downward bias due to measurement error. Therefore, the utility of propensity score matching is technically tested through regression tests.

4.2.3 - Regression tests

Before the propensity score matching (PSM) analysis, I conducted ordinary least squares (OLS) analysis. However, I do not present OLS results here because the analysis would have been repetitive[107]. I also checked for the six assumptions of OLS regressions. The residuals are almost near mean 0 and are mostly evenly spread out, implying that the OLS analysis is not heteroskedastic (see Appendix B) so that OLS estimates are BLUE - Best Linear unbiased

[107] Moreover, I focus on the PSM analysis since the aim of this dissertation is to ultimately inform government policy and it is more useful to present empirical results from a method that is usually considered more credible by policy makers (even if I use the method only as an exploration).

estimator. The standardized residuals are also normally distributed and there are no outliers in the dataset.

A Chow test (Chow, 1960) was performed on the dataset to see if the coefficients for covariates for public, private, and FAS partner schools were significantly different from each other to warrant an analysis that is aimed at countering the selection bias i.e. propensity score matching. The Chow test is often used in time-series analysis when there are structural breaks and also in policy evaluation when the impact of a policy is determined in terms of coefficients (are they different or not) for different sub-groups in a dataset. In this case, the sub-groups would mean public, private, and partner schools. The test statistic looks at the sum of squared residuals for the entire sample and by different subgroups, as well as the number of observations in each subgroup. The Chow test was performed for all covariates and dependent variables in this dissertation and showed that there was a significant difference for covariates for all three types of schools. This implies that PSM analysis added significantly in accuracy towards the relationship between test scores and school types versus a simple OLS analysis.

The variance inflation factor (VIF) was also calculated for all variables and regressions and showed that there was no multicollinearity among the variables used in the models. This was true for both individual variables and mean VIF because all values of VIF were less than 2 (a VIF value of 10 is taken as the cut-off point for confirming or rejecting the multicollinearity issue). Regression test results show that propensity score matching estimates in this chapter can be useful is examining the relationship between test scores and different school types.

Overall, findings showed that FAS program schools are more strongly related to test scores than private schools and the coefficients are higher for 5^{th} grade than for 8^{th} grade.

Subject-wise, Islamic Studies often shows the least and Science shows the highest dependence on school type. The strong positive coefficients of FAS program schools can possibly point towards unobservable characteristics they can possess because of being PPP schools. These characteristics can include how finance and management is organized; the PPP contract; and the accountability mechanism. The quantitative results and PPP unobservable characteristics are examined first in the discussion section of this chapter below.

4.3 - Discussion

From a policy standpoint, it is useful to see which school type – public, private, or PPP – adds to more understanding about increasing educational quality in Pakistan's context. The objective of this chapter was to quantitatively answer the first research question – how are public, private, and PPPs related to student achievement? This discussion section first describes the findings and weaknesses of the quantitative analysis, and then moves on to some specific PPP characteristics - considered unobservables in the quantitative analysis – that can be the reason for PPP schools performing better than public and other private schools.

Quantitative Findings and Weaknesses

Briefly, findings from the empirical analysis showed that FAS program schools exhibited a relatively stronger relationship than private schools with test scores although both school types performed better than public schools. The difference in the relationship was greater in 5^{th} grade than 8^{th} grade. Subject-wise, Math and Islamic Studies had the weakest and total and Science scores generally showed the strongest relationship with private schools and FAS program

schools. Although FAS program schools did not necessarily explain a large portion of the variance in test scores, their estimates were large compared to estimates for private schools.

As far as other school covariates are concerned, some unexpected findings came forth in terms of school inputs. Although school inputs including infrastructure are expected to positively influence test scores (Hanushek, 1986) some variables used in this dissertation, such as the availability of drinking water, appeared to have a negative relationship with test scores. This could possibly be due to measurement error as explained earlier, and also because of construction's disturbing factor that reduced the attention students could pay in class. Moreover, by policy, all public schools are required have these facilities even if all private schools do not have them and in turn, public schools scored less than private schools on PEC exams. Another reason for the negative coefficients on several school infrastructure facilities is their theoretical versus practical availability. For instance, even if monitoring reports of PMIU and PEF show that a school has drinking water and electricity when in reality there are electricity and water outages, the relationship between these facilities and test scores will not be large or significant. This is apparent through the small and often insignificant coefficients for school infrastructure variables.

One of the issues to be discussed in this section deals with methodology. This is one of the most important issues because the empirical method in this dissertation is used as an exploratory technique on which future research and policy can be based. However, the main method chosen in this dissertation – propensity score matching - has theoretical as well as practical assumptions that are not always realistic or easy to meet. On one hand, propensity score matching is useful because it can reduce selection bias. This is because control and treatment groups are matched with each other based on similarities so that only the variable of interest –

the kind of school – is supposed to differ between the two groups. On the other hand, propensity score matching is problematic because it often means reducing the sample size if all observations cannot be matched or the overlap between treatment and control groups is not large enough. Propensity score matching also assumes that the similarities (or differences) between the two control and treatment groups exist only for observable characteristics, which is clearly not a realistic assumption given that intangible characteristics of individuals and families, such as motivations and ability, cannot be measured and matched on quantitatively. The propensity score matching method in this dissertation is able to match on only a few school covariates out of the vast array of other covariates that have been used in the literature, such as teacher qualification and expenditure. Although some more covariates were available in one dataset or another (such as teacher education level), it was not possible to use them since they were not common across datasets (especially for public and private schools) or because they were not coded accurately. Therefore, for propensity score matching, not only were unobservables missing, but observable characteristics were also not fully specified. Moreover, this dissertation does not include separate analysis for tehsils so that schools in one tehsil might have been matched with other tehsils' schools, which can be problematic if there are unobservables, such as the local tehsil government management, that can influence how schools provide education.

A more general drawback of the quantitative analysis is its internal and external validity. Internal validity can be reduced because there can be spillover effects on other schools' policies who function in the same market as the FAS partner schools (Barrera-Osorio & Raju, 2011). Moreover, if schools anticipate being FAS program schools in the future, they can change their facilities and academic requirements ex-ante to meet the requirements of the FAS program.

External validity is also compromised since the FAS program schools so far comprise a small proportion of total private schools in Punjab, which means that it is not clear what results more FAS program schools will bring forward. Additionally, separate analyses for smaller political units, such as villages and union councils, might show different results than analysis at a tehsil level. Further, if a program similar to the FAS program is implemented in other provinces of Pakistan, its influence (or lack of it) might be different depending on the governance structure, culture, and data availability in other provinces. These considerations are examples of why external validity of this research can be reduced.

Another issue that should be discussed in more depth here is the high coefficients for FAS program schools (compared to private schools) shown by the empirical analysis. These high coefficients can have several explanations. For instance, they could be due to selection bias (which the propensity score matching method attempted to mitigate). Another explanation could be that FAS program schools perform better than other public or private schools on PEC exams because they are better prepared since FAS program schools also have to prepare for Qualitative Assessment Tests (QATs) to gauge their student performance (personal communication, PEF Academic Development Unit, October 19th, 2011). Like PEC examinations, QATs are based on the state curriculum (Punjab Textbook Board) but are considered by many to be more rigorous than the PEC exams. Preparing for both standardized exams can arguably provide students with more revision of the curriculum, which can improve FAS program schools' performance. However, despite similar durations of 1 hour each, PEC and QAT exams are designed by different teams that might stress different aspects of learning (such as logic versus multitasking in Math exams). For instance, PEC examinations are designed by teams of specialists in each

subject representing teachers and university faculty members while QATs are designed by PEF's own Academic Development Unit. Therefore, it is not necessary that preparing for QATs allows students to perform well on PEC exams as well.

A third explanation for higher coefficients of FAS program schools can be related to their PPP structure that leads to certain unobservable characteristics of FAS program schools, such as their PPP contract that outlines the terms of the agreement about management, finance, and continuation of partnership. This explanation indicates that the PPP structure of FAS program schools should be analyzed in more detail.

PPPs and their Structure

According to the definition of institutions in Chapter one that included both governance and culture, PPPs are close to governance according to Stoker's (1998) propositions about governance. The institutions involved in the FAS program go beyond the government to include private schools. The PPP contract deals with power dependence, authorities, and responsibilities vested in each stakeholder's sphere individually through schools as well as through the Punjab Education Foundation. Governance is also incorporated into PPPs because both for-profit and non-profit private schools have to conform to certain requirements set by PEF but which have to be met independently of PEF's help. Therefore, governance in PPPs is related to finance as well as management of its structure (Galetovic et al., 2009; Patrinos et al., 2009).[108]

[108] Although there are various definitions of PPPs (Grimsey & Lewis, 2004; Canadian Council for PPPs, 2009 cited in Engel, Fischer, & Galetovic, 2009), I adopt the one used by Engel, Fischer, and Galetovic (2009) because they apply the definition to low and middle income countries, which is relevant to my study. According to them, the institutional and economic policy components of PPPs include "(i) bundling [combining] of construction and operation, (ii) private but temporary ownership of assets and (iii) inter temporal risk sharing with the public sector"

Earlier in the dissertation, it was mentioned that for the FAS program, finance was controlled by the first party (PEF) while the management of education provision was controlled by the second party (private partner school). In other words, private schools had temporary ownership of providing education services according to the public sector's requirement while it still owned its assets. This can be referred to as bundling (Galetovic et al., 2009). However, the terms of partnership show that PEF's Board of Directors (BOD) can affect not only finance, but it can also affect management of schools whether or not the BOD chooses to exercise this effect. Managing partner schools is especially apparent through the training PEF provides to school teachers and staff about delivering high quality education. Moreover, partner schools are not just required to provide high quality education; they are also required to increase their educational quality at least partly through schooling inputs (furniture, quality infrastructure, hygienic conditions, teacher and staff training etc.). Therefore, in an unsaid way, PEF also uses finance to manage its partner schools.

Bundling is related to another important aspect of PPPs - its contract and in turn, accountability. The contract of the PPP is important to discuss because through its institutional nature, it can influence student test scores. In other words, if the FAS program does affect test scores, one of the unobservables that allows it to do so could be its partnership contract. According to Kelman's (2002) description of the main contract components, the FAS program contract seems to contain these components – education provision is possible to outsource; PEF is the sole source of the partnership; the FAS program is a completion (performance) contract; it requires multiple provision of various aspects of education provision; there is space for

---

(p. ii, abstract). As mentioned in earlier chapters, in this discussion, I focus on the first two aspects – bundling and temporary ownership – because they deal directly with the finance and management of PPPs.

incentives (e.g. for teachers in the form of monetary rewards), resolving conflict, and change in policy dependent on BOD of PEF; there is a criteria of selecting schools (see Appendix C); and PEF holds considerable authority over terms of contracts and supervision. In addition, the PEF contract of partnership also meets some of Kelman's (2002) criteria on when contracting is superior to in-house provision. This is because the final output of education delivery is precisely specified – QAT results, school facilities, enrollment levels, and quality of teaching. Another reason is that performance according to the contract is assumed to be easily measurable through PEC exam results and QATs (although neither can account for the overall education that students actually receive). Moreover, demand for being FAS program partners is also increasing (personal communication, PEF, November 17th, 2011), which will make it easy to contract versus conduct individual school supervision of an increased number of partner schools. PPPs are also more important because private schools are in a more feasible position to select qualified teachers and assess students rather than the government using its already meager resources to perform the same task less efficiently. Therefore, at least on a short-term basis, a PPP contract in the form of the FAS program is superior to in-house provision.

From an institutional and governance perspective in contract bundling/accountability and with respect to finance, PEF holds the ultimate authority to withdraw its funds at any time if the partner school is violating its terms of agreement (clause 3 in the terms of partnership; see Appendix C). This clause can potentially lead partner schools to be cautious all the time in terms of facilities, management, and student achievement. Moreover, the system of fund disbursement is not through cash but through an online transfer of funds to the partner school's bank account. Indirectly, this can induce the management of the school to be efficient and punctual in receiving

and utilizing their funds. Conversely, PEF as the first party is also induced to be efficient and punctual when disbursing funds and evaluating whether or not schools are meeting the terms of agreement (and performing well academically).

Overall, the accountability, authorities, and constraints for both PEF and funded private schools can be possible reasons why FAS program schools are more efficient and achieve higher test scores than public or other private schools. This corresponds to the literature review about institutions where Rodrik et al. (2004) claim that institutions are the most important factor for a society's growth. In econometric terms, the contract and its clauses can be the omitted variables that can bias the estimation results from the propensity score matching method. More research will be required to incorporate these omitted variables into informing policy.

A third issue that should be discussed here in terms of both PPPs and educational outcomes is the type of schools that the FAS program partners with.

FAS Program Partner Schools

When entering into a partnership, the FAS program has few requirements besides those of a school having basic facilities and passing the preliminary QATs. It does not deal with the internal mechanisms of a school so that it is interesting to see the pattern that comes forward when looking at the FAS program partner schools overall. This pattern shows that several of these partner schools seem to have a social orientation. One reason for the social orientation could be that these particular partner schools have a clear social mission, which is often apparent through incorporation of religious and ethical elements into their curriculum. Another reason could be that for-profit private schools want to capture the market, which consists of parents and

students who might have aims of social cohesion/religious values/civic ethics etc., hence again leading partner schools to have a religion-oriented curriculum. In either case – school social mission or capturing the market – it remains that schools partnering with the FAS program are often those with religious or civic values components. This was apparent through names of the FAS program partner schools (e.g. Al-Iqbal, Al-Iqra, Al-Muhammadan Institute etc.[109], which are all Islam or Pakistani identity related); school descriptions; and most importantly, through phone interviews with some principals of schools picked at random from among the FAS program schools. If the schools were small (i.e. low enrollment), school owners themselves were often the principals and were therefore in a position to elaborate on the aims they hoped to achieve through the school(s) they had established. Principals of slightly larger private schools were usually well-informed about the school's curriculum, its teaching quality, and overall educational objective. Most principals mentioned that they hoped to create citizens who were well-informed about contemporary education as well as about ethics, which they wanted to achieve through expanding on the religious component in their teachings and dealings with students and parents. This can be further examined in the next chapter dealing with parental educational decision making through qualitative analysis.

These past two chapters focused on the first research question of how public, private, and PPP schools relate to student achievement. The chapters used the FAS program in Pakistan as an example of education PPPs and hence incorporated a top-down perspective. However, in order to inform policy that can increase private and social utility, it is also important to look at the bottom-top perspective, which is represented by the second research question – how does Islam

[109] Iqbal was a famous poet and political thinker associated with the idea of an independent Pakistan. Iqra is an Arabic word and means "Read" in the Qur'an (Muslims' holy book), Muhammadan is associated with Muhammad, the last Prophet according to Islam.

matter for educational decision making? Answering the second research question involves qualitative research methods that are described in the next chapter.

Chapter 5 – Issues and Background in Educational Decision Making

The previous chapters have mostly discussed the first research question dealing with the top-to-bottom level of analysis that compared average student achievement of three school types with the ultimate aim of informing government policy about which school type to support. In contrast, the second research question addresses the bottom-to-top level of analysis and decision making where parents choose school(s) for their child(ren). The purpose of this chapter is to begin to answer the second research question – what role can Islam play in parental educational decision making[110]? A cultural stance is adopted so that decisions made at the top (represented by governance institutions i.e. school type) can be complemented by thought processes at the grass-root level (represented by cultural institutions i.e. religion). Doing so will allow two levels of interactions to be combined – one between the government and schools (described in previous chapters); and the second between schools and parents that will be described in this chapter. At the second level of interaction, parental decision making can be examined through a cultural institutions lens represented by religion[111]. This means that religion can possibly influence parents' desired education outcome(s) including education quality, school choice, social cohesion/identity formation, and/or anything else.

This chapter first discusses some research and policy literature regarding parental decision making, and religion in/and education to further expand on the concept of culture as institutions in educational decision making/school choice. The second part of the chapter discusses the background of religion in education, especially in Pakistan. The last part of the

[110] Educational decision making refers to school choice.

[111] As discussed in the definitions of institutions in chapter 1.

chapter discusses the specific data and methodology used to analyze religion in educational decision making in this dissertation, thus providing the background for qualitative analysis in the following chapter.

5.1 - Religion and Educational Decision Making

This section has two main aims – it attempts to briefly discuss parental and household decision making in terms of school choice, and then it discusses religion in education in more detail. This implies that student achievement is not the only educational outcome that parents and students aim for, and hence this implication can influence education policy.

Parental Educational Decision Making

One of the arguments for increasing school choice in parental educational decision making is that given a certain amount of resources, increased specialization through school choice will increase efficiency in terms of producing higher achieving students. Supporting this argument, a study by Sawada and Lokshin (2001) on 25 villages in rural Pakistan uses both qualitative and quantitative techniques to analyze a household's schooling decisions. The authors find that conditional on school enrollment, there is a high retention rate and that at higher levels of education, progression rates of boys and girls converge. They also conclude that the reasons behind these findings are a household's assets affecting school choice, a student's academic performance, and supply restrictions for girls' education. In addition to high retention rates mentioned above, there is a possibility of students performing better academically if they are also

enrolled in schools that have their preferred learning styles or curriculum (Goldhaber, Showalter, & Eide, 2002).

However, it can be counter-argued that the more choice, more efficiency argument is more true for a country like the United States where school assignment is generally residence-based. In Pakistan, child enrollment does not depend on geographical location (except for parental preferences of driving distance etc.) so that specialization already occurs. Conversely, if children are too young to act upon or even realize their educational preferences, their academic achievement will not necessarily increase if they go to, for instance, a secular versus more religious school.

It has also been argued that parents choose schools based on social rather than educational needs so that specialized needs for achievement and talent are less significant than receiving a traditional education (Gordon, 1994; Lauder et al., 1994; OECD, 1994 etc.). Yet parental choice is still not considered the main driving force behind initiatives such as PPPs; instead, these initiatives are more supply side and government based (Gordon & Whitty, 1997).[112] This makes this dissertation's second research question even more relevant because it can help to determine how exactly to incorporate parental choice in education policy. If parental choice is incorporated, it can possibly lead to a more diverse schooling system in terms of pedagogy, curriculum, and student body.[113]

[112] For instance, in New Zealand, the government pays 50 percent of teachers' salaries in private schools, arguing that private schools are more efficient and diverse (Gordon & Whitty, 1997). Moreover, in England, the government provides funding more to individuals than to institutions.

[113] However, some studies, such as in England and Australia, have also found that choice leads to more homogenization since schools tend to follow a similar pattern differentiated only by class and race (Blackmore, 1995).

Therefore, it seems that parents rationally derive satisfaction or utility when their children perform well in school in terms of academics, school completion, college admissions, and even religious training (McEwan & Carnoy, 2000). The higher the tuition and the larger the trade-off of education with other goods and services, the higher will be the opportunity cost of their children's schooling. Overall private utility can be maximized by obtaining the right trade-off between different educational outcomes and their opportunity cost. Given sufficient information about how well a school provides education through its resources and effort, it seems intuitive that parents will make rational decisions about enrolling their children in higher quality schools to increase their private utility. This can in turn lead the government to establish high quality PPP schools to increase social utility[114].

However, according to Hirschman (1970), there can be lapses in rational behavior where consumers (parents in this case) seem loyal to a school with deteriorating education quality. These lapses in rational behavior can possibly be explained by economics if parents desire a different educational outcome. Where Levin's (1999) framework for goals of PPPs includes productive efficiency as shown by education quality measured through test scores, it is not necessarily true that parents choosing one school over another also aim for higher test scores. This implies that there could be a difference in goals between the government, schools, and parents (for instance, productive efficiency versus citizenship identity/social cohesion). This can also imply that there could be a difference in social versus private utility of education where parents are more likely to focus on their private utility, which in turn can be derived from non-quality aspects of education.

[114] Social utility also increases when for-profit private schools aiming at profit maximization and non-profit or religious private schools aiming at high enrollment or administrative benefits (McEwan & Carnoy, 2000) can achieve their objectives through government PPP subsidies.

The mechanism behind parents choosing schools not based on education quality can be derived from institutions at an individual level. Chapter one defined culture as one aspect of these institutions. Culture further consists of social capital and norms. Manski (2000) argues that in order to more clearly describe social capital and norms, the concept of social interactions from an economic perspective can be used[115]. According to him, the economics of social interaction is unique because it brings together various decision makers (agents) with different preferences, expectations, and constraints. Instead of assuming utility maximization, decision making can be thought of as the result of social interaction through not only observing another agent's actions, but also through observing and gathering information about his/her preferences. In the context of this dissertation, social interaction can be related to how parents interact with each other to gather information about each other's decisions and expectations from schools and then choosing schools for their child(ren). This is especially true since members of one group tend to have similar opinions and behavior (Manski, 2000). For instance, if the context of choosing schools is a Muslim majority society, another context is different socio-economic classes within the Muslim majority society in Punjab, Pakistan. Arguably, these socio-economic classes will have similar preferences within each class. Manski (2000) also argues that instead of making perhaps inaccurate inferences about observed preferences and expectations of agents, "subjective" data can be collected from these agents themselves. Again, this is related to the idea - which is not common in traditional economics - that decision makers can make rational decisions and express them truthfully. As part of an exercise to collect this "subjective" data, my second research question adopts a qualitative approach.

[115] This is different from the market-based mechanisms that most economists focus on (Manski, 2000).

The specific cultural context in which I attempt to situate the institutional processes of educational decision making spreads across Punjab – religion. This is possible if parents aim towards raising children who have a strong religious identity and/or have an opportunity to receive moral and ethical education. In this sense, they can even be willing to compromise quality of education by enrolling their children in schools that focus more on religion than on student achievement.[116] Moreover, according to Manski's (2000) idea of social interaction leading to similar preferences and decision making, parents' focus on improving their children's ethics and religious identity through education can even be extended to PPP's goal of social cohesion. Whether or not, and to what extent religion as a cultural institution is a factor in allowing parents to choose schools is the second level of interaction this dissertation focuses on.

From the above discussion, it seems that at a more grass root level of interaction, religion is a form of cultural institution that is theoretically used to produce an educational outcome depending on parental preferences (perhaps ethics, religious identity, and social cohesion) and parents' interaction among themselves and with schools. The next section discusses religion in education from both a PPP choice and policy standpoint in order to lay the background for relating educational decision making with religion in the context of Punjab, Pakistan.

Religion in Education

As mentioned in chapter 1, religion can be included in the definition of culture. Religion in education (and in other social services) has always been common, even in societies that aim for secular public education and attempt to not support any one religious group (Minow, 2003).

[116] When it comes to PPP goals, basing school choice on religion can be related to school choice (so that parents at least have an option to choose from a diverse group of schools).

For instance, in the early twentieth century in the United States, even seemingly secular reforms had a religious background. These reforms have historically often been disguised as insurance or vouchers to conform to social norms; however, now the U.S. government is beginning to fund religious organizations (not just religious schools) as well as places of worship (Minow, 2003). The argument is that this policy incorporates small denominations that would otherwise be neglected. Religious schools are aided because of the government's desire for subcontracting or providing subsidies (such as through PPPs). In other words, borders between the public and private, and religious and secular, are blurred by the government so that they are "never sharp" (Minow, 2003, p. 1254). However, unlike the U.S., this is not true for Pakistan yet where religion in mainstream public and private education is not officially supported or even considered by the government although religion is often otherwise used by the Ministry of Religious Affairs to approve or disapprove policies (Rahman & Bukhari, 2004).

Religion in education has been examined through both quantitative and qualitative research. As a measure of culture, religion can be seemingly irrational. However, Berman and Stepanyan (2004) argue that this seemingly irrational behavior by a religious sect can be considered rational behavior in an economic sect. Berman's (2000) extension of Iannaccone's (1992) proposed rational choice behavior of religious groups can help to explain low returns to religious schooling.[117] This argument is described in more detail below.

In the rational choice framework of religious sects, the basic economic context assumes a competitive market. Secular behavior is assumed to be more prevalent than religious behavior

[117] These low returns to schooling were described earlier in the introduction section in terms of lower economic growth in Catholic and Muslim majority countries.

although a policy maker can subsidize religious behavior to increase it.[118] Within this proposed economic setting, externalities arise from Muslim as well as Jewish sects who play a "role of charity in providing medical insurance" (Berman & Stepanyan, 2004, p. 6). However, religious sects can also impose restrictions on consumption of certain secular goods, which can act as taxes on these secular goods. This induces religious sect members to replace secular good consumption with religious activities, which they assume leads to positive externalities. Another way of describing this optimal tax rate is the opportunity cost of potential wages in the secular market, which can rise if the wage rate increases. This opportunity cost can vary from family to family and individual to individual partly depending on education so that schooling decisions are important to analyze.

The optimal tax rate will also separate those who will undermine the quality of religious practice from those who will maintain or improve it. In the case of religious schooling, attendance is practiced by those who have low wages (Berman & Stepanyan, 2004) so that there is a low level of sacrifice that is required. In effect, religious schools separate low wage individuals from high wage ones. This can be tested by comparing the low returns to religious schooling versus secular schooling in terms of future earnings.

Therefore, a rational choice framework for religious sects shows that it is possible to place religious behavior in an economic setting in addition to the more conventional setting of spirituality (for instance, Peshkin, 1988). However, this behavior deals only with religious schools. What is the case if there are public schools or PPP schools that somehow incorporate religion in their teaching or structure? Dronkers and Robert (2008) attempt to provide an answer

[118] An example is a madrassa that provides free food and shelter to its students.

to this question by conducting a cross-sectional study (Dronkers, 2004) on comparing student achievement in U.S. religious state-funded schools (an example of a PPP school) and public schools. On one hand, Dronkers (2004) finds that students in private, state-funded schools perform better on scholastic tests than students in public schools. On the other hand, Lubienski and Lubienski (2006) find lower student performance in religious, private schools than in public schools. However, Dronkers and Robert (2008) argue that it is important to further study religion in education because it is yet unclear if higher achieving students in private state-funded schools also perform better in terms of moral and religious attitudes. Besides relevant well-defined quantitative data, this also requires a qualitative analysis, which I am conducting through this dissertation.

Similar to Berman and Stepanyan (2004), Mocan and Tekin (2002) situate their framework in a rational economic behavior model (such as behavioral economics; O'Donoghue & Rabin, 2001 as quoted in Mocan & Tekin, 2004). Examining religion, ethics, and good behavior instead of student test scores, Mocan and Tekin (2002) use Catholic schools in their analysis and measure the associations between schooling and good/bad behavior using indicators such as drug use, sexual behavior, property crimes, gang membership, suicidal attempts, and running away from home. They find that Catholic school attendance increases the probability of using and selling drugs by male students but reduces the probability of drug use and sexual activities for female students. They argue that like adults, teenagers also make rational decisions about good or bad behavior even if their decisions can differ from those of adults because of contrasting preferences and time discount rates. Another example of non-academic behavior is Levin and Belfield (2003) who show a positive association between Catholic school attendance

and civic skills, tolerance, political knowledge, and community participation. Figlio and Ludwig (1999) offer some reasons why this positive association exists – religious education can change student preferences; Catholic (and other religious) schools can have more strict discipline; and in turn, this can lead to a "better" peer group (Mocan and Tekin, 2002, p. 6).[119]

The paper by Mocan and Tekin (2002) is especially significant because it touches on another aspect of PPPs - the school choice debate since vouchers are a type of PPP aimed at providing choice among schools to students and parents. However, these vouchers are mostly used for enrollment in religious schools leading to controversy within communities and policy circles in terms of using public finance to support institutions with a particular belief system. In the United States, this debate has occurred at all government levels including the Supreme Court. Part of the issue was that through using vouchers, religious schools might force students to behave in certain religious ways that they would not have done otherwise (Minow, 2003).

In Pakistan, which is a much less religiously diverse state than England or Australia (96 percent of Pakistan's population is Muslim; CIA World Factbook, 2010), such a controversy might not arise unless the objective of the social and policy network is to maintain a strictly secular society. In this sense, PPPs that cater towards the social capital of a society, will ideally take into account whether or not religion in education is acceptable and/encouraged by society. Moreover, various religious sects (such as Shiia and Sunni) can have differing opinions and attitudes that might be important to take into account before forming and implementing any policy regarding PPPs[120]. However, Minow (2003) argues that even if finance and/or

[119] All of these are components of and can lead to social capital (Levin, 1999), which is one of the goals of PPPs.

[120] Look in Appendix D for table on schools belonging to various sects.

management go into private hands through the establishment of PPPs or privatization in general, consumers are considered passive and not active, thoughtful citizens. This can counter the effect of allowing or supporting schools to include religion in education because if they have passive parents and students as consumers, schools will not necessarily make independent decisions regarding, for instance, its curricula (especially if they cater towards different religious sects). This can also counter the choice mechanism that assumes schools to vie for more consumers. The way religion plays a role in Pakistan's schools is discussed below.

Islam is in the limelight in contemporary times largely because of its political role on many fronts including security and religious education institutes (REIs) (Stern, 2000, as quoted in Rahman & Bukhari, 2004). Many believe that the rise in anti-West and anti-American sentiments is because of the doctrinal teachings in REIs in Muslim majority countries including Pakistan (Singer, 2001). Singer (2001) mentions a "role reversal between the public sphere and private radical groups" (Singer, 2001, p. 4) where both insufficient public education[121] and expensive private education leads low income families to enroll their children in free or low cost madrassas, some of which even provide food and shelter.

As far as the quality of madrassas is concerned, Beegle and Newhouse (2005) find that in Indonesia, students attending public madrassas do not perform worse than those attending public secular schools and students attending private madrassas do not perform worse than those attending private secular schools. A study in rural Bangladesh (Asadullah, Chaudhury, & Dar, 2009) examines student achievement in secondary schools, many of which are both PPPs (public financing of private schools) and religious schools. Further still, it can be argued that madrassa

[121] In 2000-01, Pakistan spent about 2% of its gross domestic product on primary and secondary education that often resulted in lack of functioning public primary and secondary schools (World Bank, 2010; Singer, 2001). Although the expenditure increased to about 2.7% in 2006-07, public education expansion and quality did not improve much.

reform (by including, for instance, other subjects besides Qur'an and hadith) brings madrassas closer to secular schools (public and private) that incorporate religion in their curricula.[122]

Moreover, REIs can possibly have some reservations and concerns regarding reform of their curriculum, structure, and their relationship with the government (for instance, the Madrassa Reform Commission) and other public and private schools (Rahman & Bukhari, 2004).[123] One reform suggestion is to simply close the madrassa(s) if it (they) does not follow state-approved curriculum, textbooks, and teacher certification (Burki, 2001). According to an NBER Report on madrassas in Pakistan (Ahmad, 2009), the government established three model madrassas in Rawalpindi, Karachi, and Sukkur, which were privately owned although the government encouraged them to align themselves with the Madrassa Education Board as well as the Establishment and Affiliation of Model Dini Madaris Board[124]. However, the federation of madrassas from various sects jointly opposed the government-proposed reforms in madrassa education (IPS, 2009). Amidst these conflicting and oscillating sentiments towards Islam, education, and various stakeholders and reforms at both domestic and international levels, the question of religion in mainstream, non-madrassa education becomes even more significant.

Since religion in education is a policy matter, it implies a connection to law as well because policies are subject to law and "constitutional stability requires formal citizenship education" (van Geel, 1995, p. 1). While this implies that the state has authority in implementing

[122] However, again, these analyses take religious education into account by examining madrassas, not "secular" schools that also emphasize religious and ethical teachings in their curricula.

[123] Suggestions for public sector reform include standardization of student entry and exit procedure; curriculum revision; institutional development for specialization and research; establishing libraries in REIs; and getting involved in religious journalism (Rahman & Bukhari, 2004). However, again, the suggested reforms include only madrassas and do not address the role of religion in mainstream education.

[124] Dini means Religious and Madaris is a plural of madrassa.

a particular type of citizenship education (or religious education if religion is considered an important part of citizenship), it also implies that this authority is limited (van Geel, 1995). The extent of state authority is significant because in Pakistan's case, it can determine to what extent it incorporates parental attitudes in its education policy. This does not mean that the government and non-government actors are uniform stakeholders. For instance, within the American public, there is a deliberative democracy movement that believes in state coercion to instill certain values in students; however, this movement is not uniformly accepted by all non-government actors (van Geel, 1995). To demonstrate government versus non-government differences, in *Prince vs. Massachussets*, 321 U.S. 158 (1944), Mrs. Prince rested her case on freedom of religious mentorship by parents, whereas the state claimed that the state has the right to regulate even family life and religious practices (Shuman, 2011). Therefore, before taking parental views into account, the policy arena in Pakistan might refer to the fundamental religious rights in the Constitution. However, unlike the United States, policy making in Pakistan might be less fraught with debate since there is a clear religious majority despite the various Muslim sects.

What is the form of religion in education and religion in education PPPs? In the United States, this often means tax exemption, which can act as a subsidy to create incentives for the private provider (in this case, a religious organization) to perform functions that the government cannot (Minow, 2003).[125] This is one example of approaches that can include religion in PPPs where choice is created among private providers so that all religions can be catered towards. Another approach would be to ensure that each private provider supplies the same public norms to its students (Minow, 2003). Yet public-private partnerships that relate to religion in some

[125] Tax exemption occurs on a continuum with one end having complete government control, such as through criminal laws, and the other end having indirect and direct government support, such as school subsidies and student vouchers (Minow, 2003).

way(s) are difficult to analyze (and implement) because incorporating religion formally at the government level is complicated. There are various reasons for this, some of which exist already in the shape of current religious schools. For instance, there has been conflict over the registration laws and bans on madrassas (Rahman & Bukhari, 2004). Another reason is religious education related departments may not be performing their assigned tasks. The waqf department in Pakistan is an example because although it is supposed to keep a record of local mosques, it does not always do so.

It is important to keep in mind that before implementing a policy that incorporates all or most faith-based organizations that have formed schools, the performance of public schools, private schools, and faith-based organizations can differ. Research has shown that students in faith-based schools perform better on test scores than students in public schools, for instance, in Sierra-Leone (Wodon & Ying, 2009) while the opposite is true for the U.S. (Lubienski & Lubienski, 2006). This finding is even more surprising because faith-based schools tend to serve a lower income population than public schools, which would imply that public school students should perform better because they belong to a higher socio-economic class. However, Wodon and Ying (2009) show that after taking potential school choice endogeneity into account, students in faith-based schools perform slightly better on tests. Yet it is not clear from the Sierra-Leone study whether for-profit private schools perform better or worse than faith-based schools.

Asadullah, Chaudhury, and Dar (2009) attempt to clarify this question by comparing Islamic and secular secondary schools in rural Bangladesh. They conclude that students in public Islamic schools do not perform worse than students in public secular schools, and the same is true for private school counterparts. Additionally, there is also an important distinction between

faith-based schools, and other private schools that emphasize religion. Within this distinction, "traditional" Islamic schools can be distinguished from "modern" Islamic schools where the former focus mostly, if not only, on Islamic teachings. There can also be differences between the traditional and modern Islamic schools in terms of their structure and accountability mechanisms leading to differing performances of students (Asadullah, Chaudhury & Dar, 2009).

On a more qualitative and controversial note, what is the role of Islam in today's Pakistan according to decision makers in the education system, such as parents and policy makers? To build on the idea mentioned before of religion being related to certain behaviors, such as honesty, religion in Islam takes on a moral and even normative tone if parents choose schools Islamic schools. For instance, according to Ahmed (2002), in addition to the scientific rationality in Ibn Khaldun's works (which, some Muslims believe he takes too far), there "is a moral imperative in his interpretation of *'asabiyya* as the organizing principle of society. Muslims see human beings as having been created to implement the vision of God on earth through their behavior and organization of society" (Ahmed, 2002, p 25). This is similar to Peshkin's 1988 description of a fundamentalist Christian school in the U.S. In other words, the social order must have a moral order in organized societies. It is important to understand the concept of asabiyya in order to understand current Muslim societies. Asabiyya is Ibn Khaldun's most well known theory of social organization. It brings together different groups who want to approach an ideal and through asabiyya, values are imparted from one generation to the next. Asabiyya generally belongs in "traditional" societies but it breaks down in more "urbanized" settings (Ahmed, 2002, p. 30). However, since the sample in my dissertation includes urban

areas as well, it will be significant and interesting to see if social order breaks down in urban areas (and if attitudes towards religion and education are different in urban versus rural areas).

It is important to keep in mind that the timeline for social order to be built and then break down is uncertain because according to Ibn Khaldun, "certain civilized societies based in cities with developed social organization, arts and crafts, may take a long time to break down" (Ahmed, 2002, p. 30). After the advent and decline of colonialism, urban areas do not respond to asabiyya, which the rural and traditional areas cannot provide in any case, and yet "Muslims everywhere will voice their alarm at the breakdown of society. They know that something is going fundamentally wrong but are not sure why" (Ahmed, 2002, p. 31). Ahmed (2002) attributes the breakdown of society or of asabiyya to several factors including institutional problems, such as corruption, a growing income disparity, and new ideas from the West that can challenge traditional norms and assumptions.

Conversely, Pakistan at least has also shown a revival of traditional norms through an increasing emphasis on religion in education. Although asabiyya is a controversial concept, it can be argued that there is an attempt to restore an older social order in Pakistani society. This implies that there is also a possible shift in primary identities in society from blood and place – or ethnicity and nationalism - to religion (which are the three main sources of identity according to Kottak (2000) and Lewis (1998)).

In this sense, it can be argued that conducting a qualitative analysis that examines religion and educational decision making is important because it can help to extend the analysis to countries with a similar religious majority as Pakistan, such as almost all Middle Eastern countries, and especially those that have PPP policies. However, since religion is not the only

component of culture, it can be counter-argued that Pakistan might have more similarities with other countries than Muslim majority ones. For instance, Gupta, Hanges, and Dorfman (2002) discuss how scholars have organized international cultural clusters according to three main criteria – i) geographic proximity (Furnham, Kirkcaldy, & Lynn, 1994); ii) mass migration and ethnic social capital (Portes & Zhou, 1994); and iii) religious and linguistic commonality (Cattel, 1950). In this sense, besides religion joining Pakistan with the Middle East, geographic proximity, mass migration, and ethnic social capital make Pakistan very similar to other South Asian countries, such as India and Bangladesh[126]. Using several other sources, variables, and factor analysis, Gupta, Hanges, and Dorfman (2002) suggest the existence of ten major cultural clusters where South Asia is one of them. However, the earliest attempts to cluster cultures depended largely on religion. For instance, Toynbee (1947) identified five existing clusters, three of which were based exclusively on religion – Orthodox Christian, Islamic, and Hindu (Far Eastern and Western were the other two). Later, Sirota and Greenwood (1971), and Ronen and Kraut (1977) used work goals (albeit in a relative small country sample) to conclude that cultural clusters had strong religion-language basis.

Since almost all past and recent attempts to cluster cultures conclude that religion is a significant factor in this clustering, this dissertation focuses on this factor, especially because other authors have claimed that religion also affects attitudes towards work and the economy (La Porta et al., 1998). Religion can also be considered a part of a community's social capital, which, as shown before, is also important for determining the formation and success of PPPs. Therefore, this inter-connectedness of economics, education, and religion makes it imperative to

[126] Although Pakistan was not among the 61 country sample used by Gupta, Hanges, and Dorfman (2002), it is part of the Indian subcontinent. However, it can still be argued that India and Pakistan have recently followed different economic trajectories, which can influence cultural practices in each country (Rodrik & Trebbi, 2004).

qualitatively answer the second research - how Islam relates to educational decision making - in Pakistan's PPP context.

It is important to keep in mind that the qualitative component of this dissertation is not an official case study in itself. Instead, it aims to complement the quantitative analysis by raising policy relevant issues. However, in line with qualitative research methods, I still follow a triangulated approach – observation, individual interviews, and focus groups – although I focus on interviews because respondents seemed more comfortable in sharing their views on an individual basis. The next sections on qualitative data and methodology are organized as follows: Religion in education in Pakistan is first put into context by discussing types of religious educational institutions so that they can be kept in mind when using the second research question to inform education policy. Then data and qualitative methods are described with an emphasis on locations that currently have a low density of FAS program schools because these locations will have a higher chance of receiving PEF's funding in the future and hence are more relevant for policy making (PEF, personal communication, November 14th, 2011). Chapter 6 uses these data and methods to answer the second research question.

5.2 - Background of Religion in Pakistan's Education System

For Pakistan as a case study, I create a typology of institutions that deal with Islamic or religious education in general so that the structure and curriculum of existing schools can be compared to future educational institutions that the government could potentially fund. The following table shows this typology or at least a part of it because information on Islamic

education in mainstream Pakistani education is not readily available. Instead, madrassa education is described in more detail in the current research and policy literature (Shafiq, 2010). The table focuses on Muslim majority communities (Middle East, Pakistan, Southeast Asia) and specific examples are given from Pakistan where applicable.

Table 3 – Typology of Institutions Teaching Islamic Education[127]

Type	**Ownership**	**Funding**	**Management**	**Subjects Taught**	**Subjects Emphasized**	**Type of Student Body**	**Duration of Establishment**
Unconventional Religious Masters	No institutional ownership	Masters usually provide free teachings	Conducted informally at a mosque or a halaqa (informal learning circles)	Some were also Sufi orders, e.g. established in the Indian sub-continent and Central Asia.	Grammar, logic, poetry, literature, Arabic, and Persian	Both children and adults	Began in about 9th century.
Traditional Madrassa[128]	Founding shaykh-director	Donations, government (e.g. through Ministry of Religious Affairs in Pakistan)	Mosque, dormitories and classrooms	Canon, key texts, fiqh (Islamic jurisprudence), hadith, commentaries	Advanced religious learning	Malleable; Boarding schools	Since the Medieval Ages; first in Egypt.
Waqf/medieval madrassa/maktab (school)	Legal charity/endowmen n without a fixed organizational structure[129]. Often in rural areas.	Pious endowments	Varied; depended on master shaykh	Some madrassas included "foreign sciences" (Hefner, 2009), such as mathematics, astronomy, philosophy, poetry, and medicine.	Religious – Qur'anic recitation;Qur'anic interpertation; hadith; Arabic grammar; jurisprudence; principles of religion; sources of law; didactic theology	Malleable, no fixed enrollment, depended on teachers	Often lifelong; first established during the Caliphates of 'Umar (634-644 A.D.) and Uthman (644-656 A.D.).

[127] Ownership, funding, and management are included in creating a typology because they are significant aspects of PPPs and their contracts (Galetovic et al., 2009). Although it can be argued that one aspect is more important than the other in determining the intensity of religion in an institution (such as curriculum versus management), I give all aspects equal weight because of the policy implications they can have.

[128] Traditionally from Central to Southeast Asia, there were learning groups at royal mosques or courts (Hefner, 2009, p. 14).

[129] Unlike its equivalent, the "corporate entity," in the West i.e. the university (Hefner, 2009, p. 8).

Koranic school[130]	Varies; often on a voluntary basis especially in rural areas	Free or small donations by students' families.	Function under a tree, mosque, teacher's house etc. Peer tutoring if there is a large student body.	Qur'anic recitation and reading	Qur'an only	Usually 4-16 year olds.	Finish the Qur'an in about 3-4 years.

Type	**Ownership**	**Funding**	**Management**	**Subjects Taught**	**Subjects Emphasized**	**Type of Student Body**	**Duration of Establishment**
Modern[131] Madrassa	Private/government-owned	Often free for students, otherwise funded through donation, low student fees, government.	Teachers of different levels	Mostly religious; "modernist-operated" in Malaysia. General elementary education of at least 6 years. Can also be called "Mosque Primary schools" because in Pakistan, the government wanted to include some secular subjects in mosque schools.	Instruction in "foreign sciences" often declined and even ended. Jurisprudence was emphasized; concentration of religious teaching increases with the level of education.	All levels of education.	Over time, madrassas changed to secular knowledge centers and then to Islamic teaching only (e.g. Pakistan and Indonesia).
Religious Schools	Individuals/private businesses/government	Student fees/donations		Commitment to sharia (Islamic law) as well as democracy	Support subtle civil rights although there is large cultural uncertainty (e.g. in Indonesia)	Devoted to social movements sometimes. Include tertiary institutions as well.	
Secular Schools	Individual/Business	Primarily Student Fees	Board of Trustees; Hired employee; colonial administration	Language, Literature, Mathematics, Physical and Social Sciences, Art etc.	Assimilation (i.e. becoming part of the secular regime) vs. incorporation of religion/local language in schools.	Usually middle income and higher income groups.	Came with the advent of colonialism in Muslim majority areas (Anzar, 2003)

[130] Adapted from Anzar (2003).

[131] "Modern" in this context refers to recent and contemporary characteristics i.e. a time based definition is used as opposed to an ideology based definition.

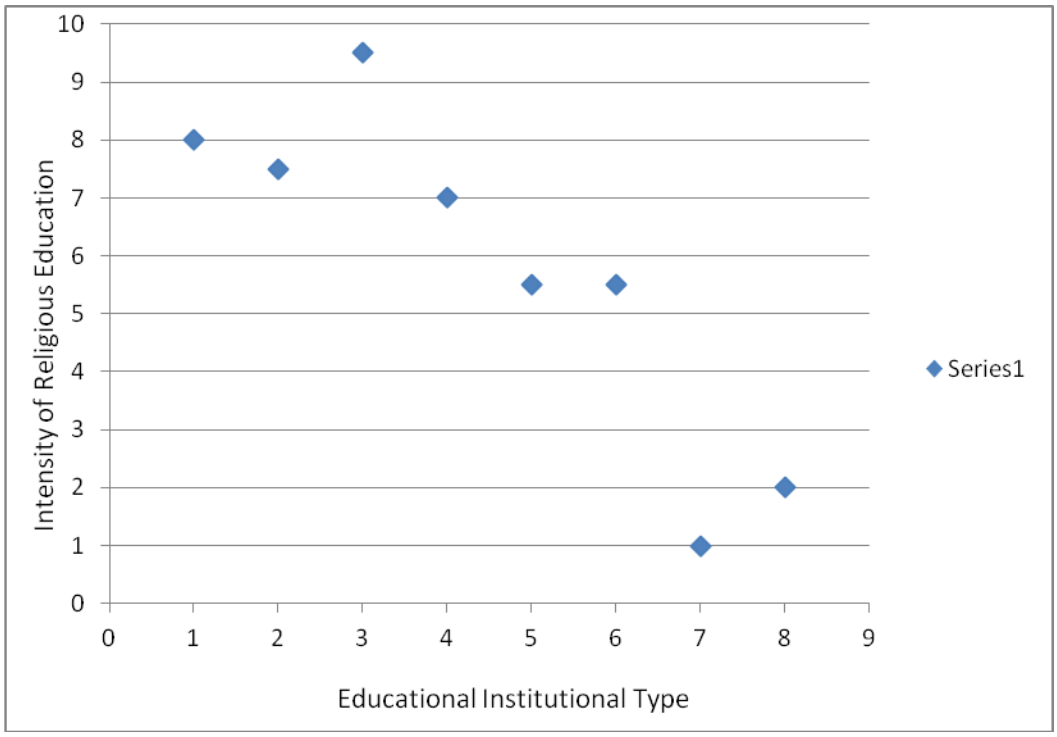
Hybrid	Individual/private/semi-private/	Some are funded by international donors e.g. UNDP; Others by student fees, government etc.	Internationally funded ones are called "Improved Koranic Schools"; otherwise private managed.	Secular knowledge with applying the Qur'an's perspective.	Blend Islamic values (unity, selflessness, simplicity, social justice, and self-sufficiency) with modern values (e.g. entrepreneurial business management, English proficiency, and computer skills).	Varies.	Their establishment has increased in the twenty-first century.

As shown above, there are subtle differences between Koranic schools, traditional, and secular madrassas possibly because of recent government reform efforts (especially because of international pressure on Pakistan).[132] The curriculum includes various intensities of Islamic education whereas hybrid schools are similar to modern madrassas in terms of including secular subjects in their curriculum. These madrassas are often managed by teachers themselves although there can be headmasters or administrators. Moreover, funding sources most often include donations and government funds while only secular or hybrid schools work as businesses (even if they are subsidized by the state).

The chart below maps the intensity of religious education in various types of schools and educational institutions. This chart will help in categorizing the findings of the qualitative analysis in terms of the desired religious intensity parents prefer in their children's schools. Details on how the intensity is calculated and a key to types of educational institutions are provided below the chart.

[132] Koranic schools are different from mosque schools, which are considered public primary schools operating under the Ministry of Education.

Figure 7 – Intensity of Religious Education



Score for ownership, funding, management, curriculum, emphasis (Mostly supply side factors):

- Ownership → 1 if it is publicly owned or comes under the Ministry of Religious Affairs/Religion (although this is not a perfect division)
- Funding → 1 if it runs on donations or government
- Management → 1 if it is managed by religious teachers or heads or Ministry of Religious Affairs/Religion
- Curriculum → 3 if all major Islamic subjects; 2 if only Qur'an; 1 if includes secular subjects
- Emphasis → 3 if on religious subjects; 2 if only on Qur'an; 1 if on both religious and secular subjects.
- 0.5 is used where the factor varies according to time and place.

Therefore, given that score are assigned in the order above, the x-axis numbers correspond to:

1 → Unconventional Religious Masters: 0 + 1 + 1 + 3 + 3 = 8

2 → Traditional Madrassas: 0.5 + 1 + 1 + 2.5 + 2.5 = 7.5

3 → Waqf/medieval madrassas/maktab: 1 + 1 + 1 + 2 (average) + 2 (average) + 2.5 (average) = 9.5

4 → Koranic Schools: 1 + 1 + 1 + 2 + 2 = 7

5 → Modern Madrassas: 0.5 + 1 + 1 + 2 (average) + 1 = 5.5

6 → Religious Schools: 0 + 0.5 (average) + 0 + 2.5 + 2.5 = 5.5

7 → Secular Schools: 0 + 0 + 0 + 1 + 0 = 1

8 → Hybrid Schools: 0 + 0 + 0 + 1 + 1 = 2

In other words, in descending order, the intensity of religious education by educational institutions is: waqf/medieval madrassa; unconventional religious masters; traditional madrassas; Koranic schools; religious schools and modern madrassas; hybrid schools; and secular schools. The discussion after the qualitative analysis in chapter 6 will attempt to place the desired educational outcome by parents into one of these educational institutions.

Since the qualitative analysis of this dissertation is conducted from the perspective of if/how future policy can or should include religion in Pakistan's mainstream education, it is important to look at the current situation of how religion is included in education. The latter is mostly through schools that are specifically religious and focus less on secular education (MOE, personal communitation, October 19th, 2011). The following table shows the breakdown of

religious and secular schools in Pakistan in 2007-08.[133] Mosque schools operate under the Ministry of Education.

Table 4 – Secular and Religious Schools in Pakistan, 2007-08

Province	Number of schools			Enrollment			
	Secular	Mosque	Madrassa	Secular	Mosque (public only)	Madrassa
Punjab	97,499	4,967	5,438	18,424,231	304,230	698,998
Sindh	59,908	42	1,862	6,745,061	-	316,664
Khyber Pakhtunkhwa	30,740	2,802	2,633	5,302,605	166,267	355,207
Balochistan	12,469	462	683	1,140,269	17,178	68,597
Total	**200,616**	**8,273**	**10,616**	**31,612,166**	**487,675**	**1,439,466**
Note: Each type of school includes public and private, and male and female unless specified otherwise						
Source: Academy for Educational Planning and Management, Ministry of Education, 2007-08						

Note: Khyber Pakhtunkhwa was previously NWFP (North West Frontier Province).
Table is based on author's calculations.

According to the table above, madrassas are more common than mosque schools although both have less quantity and enrollment in Sindh and Balochistan than in Punjab and Khyber Pakhtunkhwa. Since mosque schools are considered part of primary education, it can be assumed that either they teach only the Qur'an at an early age or in addition to the Qur'an, they also teach the regular Punjab government curriculum but are built in a mosque. The table shows that less than 5 percent of all educational institutions are madrassas and they enroll an even lesser percentage of all enrolled students. Perhaps simply because of its high population, Punjab has

[133] As noted below the table, mosque schools are considered secular only because they are operated by the Ministry of Education although they impart mostly Qur'anic and Islamic teachings.

both the highest number of madrassas, secular, and mosque schools. Khyber Pakhtunkhwa has the highest proportion of madrassas versus secular schools followed by Punjab, Balochistan, and Sindh. This dissertation restricts itself to schools that in this table would be considered secular or mainstream for reasons mentioned earlier (e.g. most of the research focus so far has been on madrassas, and the government policy can influence non-religious schools more closely madrassas).

Moving onto how the face of future religious and mainstream education can be shaped depending on parental preferences, the next section describes qualitative methods used to answer the second research question, which aims to investigate the relationship between Islam and educational decision making.

5.3 – Qualitative Methods

This dissertation uses Punjab, Pakistan, as the data source to conduct its qualitative analysis. I used the triangulation approach to collect and analyze data, which included observations, interviews, and focus groups. Like interviews, observations were mostly on an individual basis unless the interview was interrupted by a parent's child(ren) so that I could see how parents and children interacted with each other. Otherwise, observations were mostly based on the tones, gestures, and body language of the respondents. Interviews were conducted on an individual basis without outside interruption. They included both objective and open-ended questions, and were conducted in English, Urdu, and Punjabi (depending on which language the respondent felt most comfortable with). Since I am fluent in all three languages, I did not need a translator. The interviews questions and their rationale are discussed in more detail in the next

section. Sometimes, individual interviews turned into group interviews, especially in Kolo where village women were used to congregating at one spot. Focus groups were also conducted and sometimes included only parents and at other times, they included both teachers and parents. However, there was a higher chance of providing socially desirable answers in a focus group setting because the research topic asked about personal viewpoints and motivations. This means that data collected from this method has to be accordingly qualified.

The next section provides some rationale for interview questions asking parents about their background and educational decision making.

5.3.1 - Rationale for Interview questions

In answering the second research question, the chapter inexplicably becomes exploratory through a bottom-to-top approach as opposed to the top-to-bottom approach in the quantitative section. This is because while the quantitative section looked at the association between school types and student achievement to inform education policy made at a provincial, district, or even school level, the qualitative section will look at how attitudes and decisions at the individual level can be related to educational decision making and government policy. The second research question is sequential – interviewees will first be asked about their background and perceptions about Islam, and then they will be asked, implicitly or explicitly, to relate their background and perceptions with decisions about school choice for their child(ren).

When designing the questionnaire, especially in terms of its open-ended questions, I took into account methods and results from a pilot study I conducted on a similar topic before designing my dissertation research. The pilot study helped in designing the objective and

multiple choice questions as well as the open-ended questions for the dissertation such that they are accessible to the respondents, reduce researcher bias, and are targeted carefully towards obtaining answers that are relevant to the second research question.

The interview questions themselves cover a range of topics from background information about parents to information about their social and religious attitudes. It is important to collect background information about parents' education and employment because these variables have also been used extensively in quantitative studies to determine their relationship to, for instance, health and schooling decisions for their children. For instance, Holmes (2003) shows that mothers' education is significantly and positively related to their children's education, and more so with daughters' than with sons' education[134]. Although several earlier quantitative studies have concluded that there is little positive relationship between parental education (especially mothers) and their children's education (for instance, King & Lillard (1983); Alderman et al., 1995, 1996; and Behrman et al., 1997), more recent studies have shown that the opposite is true (e.g. Rothstein, 2004; Carnoy, 2006). This discrepancy could be due to the different datasets being used for the various studies. Since the quantitative data used in this dissertation does not include individual or household level information, I hope to somewhat reduce this gap in analysis through grass-root level interaction with individuals.

In the interviews, questions about parents' childhood are also important because they can offer a clue about whether or not some or all of their children live with their parents, and hence provide an additional qualitative variable for schooling demand (Holmes, 2003). Used quantitatively (although not in this dissertation because of lack of such detailed data), if the

[134] The gender aspect is also kept in mind when analyzing the qualitative data.

decision to leave home and low motivation of individuals to study are correlated, the unobservable characteristic (motivation) can lead to sample selection bias (Holmes, 2003). However, attempting to reduce selection bias by, for instance, dropping individuals above 15 years old from the sample (Birdsall, 1982), can increase censoring bias because it increases the proportion of individuals still in school versus those who have completed school. I hope to uncover some of these unobservable characteristics through qualitative research in this dissertation, which can provide ground for further research on educational decision making.

The interview questionnaire also contains questions about parents' education levels. This is not only because education is related to pecuniary returns to education[135] that can determine a student's socio-economic status, but also because parents' education is related to non-pecuniary returns to education (Oreopoulos & Salvanes, 2009). An example of a non-pecuniary return to education is good health (Oreopoulos & Salvanes, 2009) although it can still be argued that good health enables a student and/or employee to be more productive and hence gain higher pecuniary benefits. Other non-pecuniary benefits can include more stable marriages (for instance, because of critical thinking skills) and parenting skills (Oreopoulos & Salvanes, 2009).

Parenting skills are important because they not only shape their children's academic and social skills at home, but they also allow parents to choose utility maximizing schools for their children. In turn, the effect of parental decision making on children's cognitive and non-cognitive achievement is significant even after controlling for income and socio-economic factors. Partly depending on the type of schooling, attending school can influence students' preferences in terms of, for instance, current versus future consumption. In line with the

[135] The channels are many, such as through signaling and skill development. However, it is beyond the scope of this dissertation to include that body of literature.

discussion of culture used in this dissertation, schooling can also affect trust levels, which in turn, can affect social capital. Higher social capital is often used as an argument for public subsidies, such as PPPs (Hanushek, 2002)[136].

Before describing the sample and collected data, it is important to mention some weaknesses of the study and the role of the researcher. The latter is important because the researcher becomes part of the research context in which the interviewee participates.

5.3.2 – Triangulation, Confidentiality, Anonymity, and Researcher Bias

Although I have used triangulation and hence three methods of qualitative research to answer my second research question – observation, interviews, and focus groups – my analysis focuses more on interviews. There are two main reasons for this – one, since the research deals with intimate issues, such as religion, it appeared that participants were more open and comfortable sharing their views on a one-to-one basis with the researcher. This also led to less reliance on observational data because in individual interviews, it was not possible to observe participant interactions with either other participants or their children etc. Two, in focus groups, participants might have been influenced each other's voiced opinions and provided what he/she thought were socially desirable answers. Therefore, although even individual interviews sometimes turned into quasi-focus groups because multiple individuals congregated at the research location (e.g. out of curiosity especially in the village Kolo), interview data still dominated the triangulation approach. This can be considered a strength because interview data

[136] However, in the case of Punjab Education Foundation and its FAS program, the public subsidies are mostly considered by the government as a means to improve the quality of education achievement-wise.

ensured more open and accurate answers. However, it can also be considered a weakness because it assumes full reliance on what the interviewee says. This can be problematic because despite assurance of confidentiality by the researcher, interviewees might share limited information or they might provide answers that they think are preferred by the researcher (this is related to researcher bias described later).

In order to maintain confidentiality, the original questionnaires are kept in a locked drawer after the answers for each questionnaire are entered into a dataset under numerical ID numbers and not names of participants. Only the principal investigator has access to the original questionnaire. The identifiers are destroyed after data entry. The data will be used only for analytical purposes or to follow up with interviewees in case of missing data. These questionnaires are also destroyed after the data is coded. The option to consent or not consent to being audiotaped was in the participant consent letter and I also explained it verbally so that subjects had a clear choice. If subjects consented to being recorded, the audiotapes were destroyed after transcription so that they do not even accidentally become accessible to anyone besides the principal investigator. The transcribed interviews are listed under numerical IDs and not names of participants. If some subjects did not consent to being recorded, again, they were not listed under personal identifiers but rather under numerical IDs so that their confidentiality was protected.

The risks associated with this study are minimal, such as potential self-consciousness if an individual is unused to disclosing personal views. However, the interview is conducted in a safe space with mostly only the principal investigator and interviewee so that this risk is mitigated if not eliminated. Moreover, some participants might have been hesitant about sharing

their religious views, especially in a focus group. In this case, the participants are reassured of anonymity and confidentiality (after identifiers are destroyed) to avoid any social harm. In other words, both the magnitude and probability of risk are minimal, such as might be encountered by having any discussion. Yet I still focus more on interviews than focus groups so that participants are more comfortable in sharing their true opinions.

One of the main sources of research bias in qualitative research is the researcher him/herself. The gender, income group, occupation, and even personality of the researcher (including the principal investigator) can influence how research participants respond to questions (especially open-ended ones). Avoiding researcher bias is important because often interviewees will consciously or unconsciously tailor their answers to what they think the researcher would like to hear or to avoid peer pressure especially in a focus group.

For this dissertation, researcher bias could have arisen because I am female, educated in the U.S., from a relatively upper middle income group, and Muslim. Being female allowed me to interact more frankly with female interviewees who might have been less open with a male researcher. Being Muslim was also in my research advantage because parent interviewees assumed I was familiar with what they were discussing and hence answered in more detail. Being educated in the U.S. was also helpful because it grounded the study more seriously in participants' views so that they attempted to articulate their answers more comprehensively. To further reduce researcher bias, I reiterate in the beginning of each interview that the participant should think of me as an objective third party whose opinion does not and should not matter for their answers or their well-being. In addition, the pilot study I conducted before designing this

dissertation's interview questions was helpful in informing me how to word the questions so that research bias is mitigated to a negligible level.

Starting the interview, I first ask them what, in their opinion, is the purpose of education. If someone mentioned social capital or socialization, I build on that. Otherwise, I describe to them myself what one of the purposes of education is believed to be (i.e. socialization, building social capital, identity). Then I briefly describe the quantitative component of my research in non-technical terms before moving onto explaining why interviews at the grass root level are important.

The words or examples I use in the interview depend on the setting. For instance, if the subject belongs to an elite and educated family in Lahore, the level of explanation and language (English) I use is different from that I use for a low income and less educated family in the village. So I try to ensure that the research description corresponds to the subject's comfort level.

The next sections describe qualitative data sources and a brief sample description.

5.4 – Qualitative Data

Besides the individual level sample that is described later in this chapter, this section talks in more detail about the geographical localities of the interviews. Since my quantitative data sample involves all of Punjab, I use three types of localities that are present within that data. One is a large city, Lahore, which represents large urban centers. Another is a small city or town, Sargodha, which represents medium to small sized cities. Lastly, Kolo is a village used in the qualitative analysis that attempts to represent the mostly rural population of Punjab. Lahore is in

district Lahore, Sargodha is in district Sargodha, and Kolo is in district Hafizabad. Punjab is almost all Muslim except for a small Christian population. There are five main ethnic groups in Punjab – Jatt, Gujjar, Awan, Arain, and Rajput. Punjabi is the mother tongue of about 90 percent of Punjab's population while Urdu and English are used officially (Pakistan Ministry of Information and Broadcasting, 2011).

It is important to note that all three localities are in northern or central Punjab. This was a deliberate selection since currently, PPPs in terms of private schools funded by the government are not common in northern or central Punjab and hence these districts have a higher probability of forming future PPPs than districts that already have PPPs. This is true for the largest PPP program in Punjab, the FAS program, which is so far concentrated in southern Punjab (although PEF is expanding its district coverage) and which was also described in the quantitative section. Table 5 below shows the relative number of FAS program schools in Lahore, Sargodha, and Hafizabad versus some of the most concentrated FAS program districts - Bahawalnagar, Bahawalnagar, Jhang, and Multan.

Table 5 – FAS program schools and shares in chosen districts, 2009-10

Program District	**Number of Program Schools**	**Share of District Program Schools**
Bahawalnagar	186	0.10
Bahawalpur	258	0.15
Jhang	126	0.07
Multan	191	0.11

Lahore	**43**	**0.02**
Sargodha	**24**	**0.01**
Hafizabad	**0**	**0.00**

Note: Official total number of program schools is 1779
Source: PEF(2010)

Since the aim of this dissertation is to ultimately aid policy and decision making, there is more potential for the government to have flexibility in terms of the types of schools it funds or otherwise support in districts that so far have little government presence in the private sector. These districts are mostly in northern and central Punjab so that Lahore, Sargodha, and Hafizabad are chosen for the qualitative sample.

Within these districts, the specific cities and village are chosen based on statistics as well as accessibility. Lahore is the largest city in the province so it made sense to choose it for the large city sample. Choosing Sargodha was slightly more tricky because there are several other cities in Punjab about the same size as Sargodha, such as Multan, Sahiwal, Faisalabad etc. The deciding factor for Sargodha was ease of accessibility and contacts so that the sample could be collected through a snowballing effect. Sargodha district consists of six tehsils – Bhalwal, Kotmomin, Sahiwal, Sargodha, Shahpur, and Sillanwali – and 845 villages. Its population is about 3 million and there is a 66 percent literacy rate (Government of the Punjab, 2011). For Kolo, Hafizabad was the district chosen because I wanted to exploit as many geographical areas as possible so that ideally, all three sample localities were in different districts. Other than that, accessibility was easier because it is close to both Lahore and Sargodha so traveling is feasible yet not so close that it is the exact same population. Differences among the three localities lie in the dominant language or at least dialect that is spoken; the relative income levels and job

opportunities available; and migration to and from the district (Lahore has the most and Kolo the least "to" migration; Sargodha has about the same to and fro migration from the city).

The choice of specific individuals within the three localities was based on multiple factors: income level; gender; age; education level; and school type (for teacher parents). For Lahore and Sargodha, income was divided into three levels – upper/upper-middle, middle, and low income groups. Classification into these three groups was by the individuals' self-perception. However, upon further validation (depending on government classification) given income levels and occupations, self-classification and validation overlapped almost 100 percent. For Kolo, low income was the only applicable income group. I also attempted to mostly interview one parent per household in order to get as much variation and representativeness in the sample as possible. Choice of interviewing mother versus father of the student or prospective student was done randomly. In terms of age, the sample was 80 percent restricted to parents who had children in primary and secondary schools; 10 percent to those whose children had yet to join school; and 10 percent to those whose children were at higher levels of education. The education level of parents was almost always tied to income levels so that educational background did not significantly affect the sample. School type was also often associated with income level; however, I ascertained that both high and low cost/quality private schools that students attended were varied although the range of schools was more limited in Sargodha than in Lahore. Kolo was a simpler place to sample schools because there were mostly public schools except one non-profit private school.

Given all these factors, the total sample amounted to 100 individuals – 30 from Lahore, 30 from Sargodha, and 40 from Kolo. Kolo was over-sampled because most of Punjab is rural

(about 70 percent versus 30 percent urban population, Population Census, 1998) so that a larger sample could possibly more closely attempt to approximate the rural population. However, the sample in this analysis is by no means necessarily representative of Punjab, of the districts used, or even of the populations in the sample locality. Instead, the aim of this analysis is to point out one possible direction for the government to investigate and attain its objective more accurately.

The individual sample is described below.

5.4.1 – Sample Description

The data sample includes adults (who were competent to give research participation consent) – 25-50 year olds including parents, teachers who are also parents, and vice-principals of two schools. Parents define the demand side of the educational process while school personnel define the supply side. Having both sides makes the analysis more rich and nuanced. Both men and women are included in the interviews, almost all of whom are Muslim and ethnically Punjabi. All income levels are targeted. Some adults could possibly be migrants from other provinces or Pakistanis who had lived abroad for a few years before returning. Some adults, especially in villages, include individuals who cannot read or write. However, the principal investigator is a native speaker of Urdu and Punjabi so that translation is not an issue and the interviewees' informed consent can be obtained through a thumb print or recorded orally.

For interviews conducted on school premises and involving school personnel, interviews are conducted outside regular classrooms, for instance, in an empty classroom or unoccupied office space. This made it more convenient for parents since they could be interviewed when they came to drop off or pick up their child(ren) from school. For interviews that were not

conducted on school premises (this is true for most interviews), the locations varied according to participant preferences although their own homes probably provided the most comfortable and private space for them. However, I left the choice to each individual participant.

In Kolo, individual interviews often turned into focus groups especially because interviews were conducted in an open space. Moreover, women knew each other and out of curiosity and/or moral support, sat down together and participated as a group to share thoughts and joke about each other. However, their opinions were almost never affected by each other because due to their knowing each other, they did not feel self-conscious. This not only helped in giving me accurate information but also allowed me to see their group interaction. On average, each household had 4 children and at least among the sample I had, there were about the same number of boys and girls among all children combined from all households.

With the background of religion in education, and qualitative methods and data in mind, we can move onto analyzing the collected data in the next chapter.

Chapter 6 – Relating Islam and Educational Decision Making – A Qualitative Analysis

This chapter qualitatively answers the second research question: How does Islam matter for educational decision making? Indirectly, this question also asks how the government can form policies for establishing certain types of public-private schools depending on parental preferences. Policy-related issues are discussed more fully in the next chapter.

As described in chapter one, Islam is used as an example of religion, which in turn is the cultural component of institutions and their relationship with education. The first research question compares school types according to how the government makes certain policies (the FAS program in this case) regarding student achievement that focus on education quality. However, the second research question counter-questions the government's focus on only student achievement in order to verify that the beneficiaries – parents and students – are increasing their utility from the education that the government supports. This is especially significant given the types and aims of schools that the FAS program actually incorporates (e.g. many of them have ethical and moral aims).

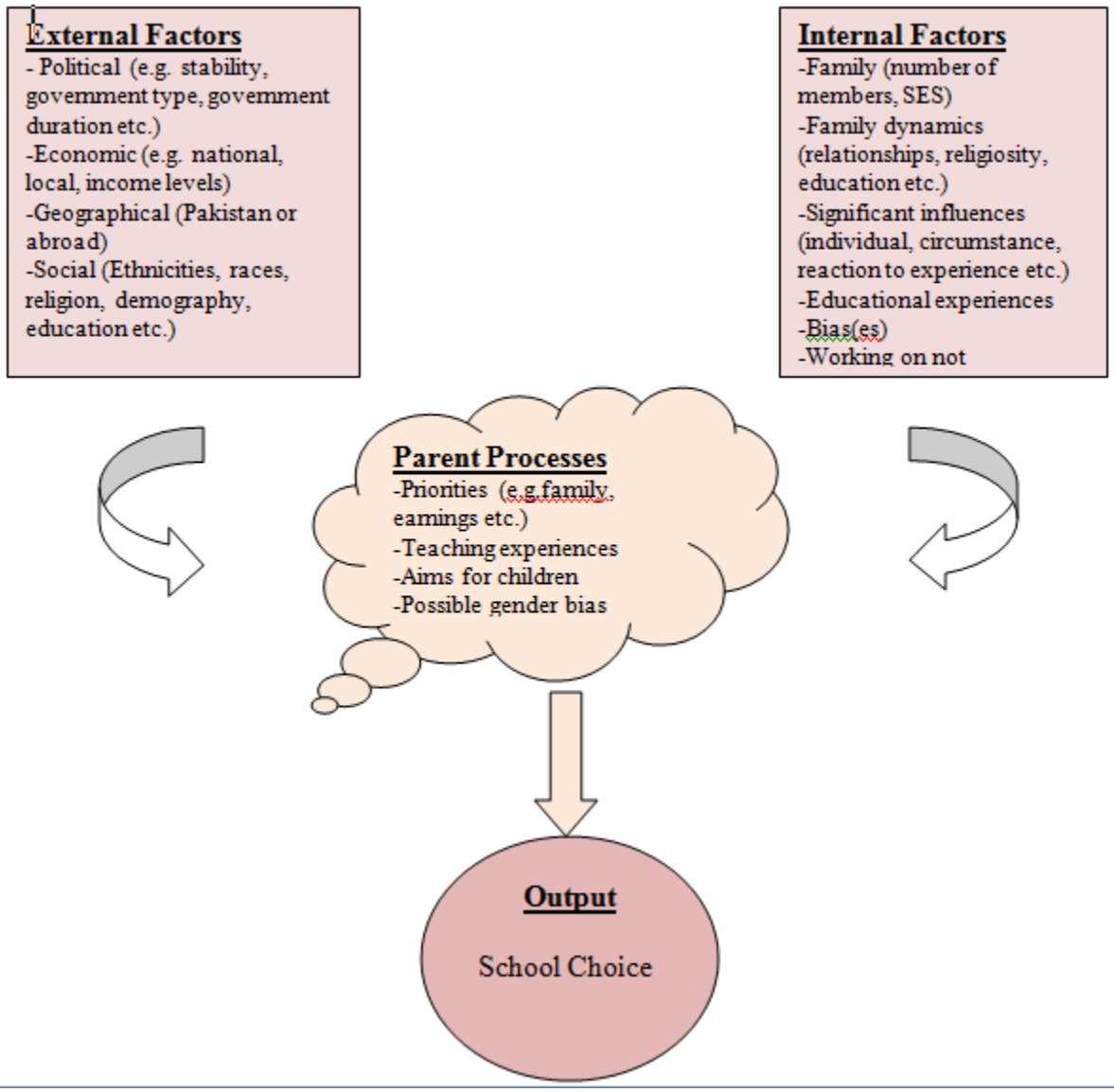
In this chapter, I first outline the hypotheses, and main trends and themes that came forth from qualitative data sources. These trends and themes are divided into two sections – influences on parents' attitudes and aims (parental processes); and how these attitudes and aims influence the school(s) they choose for their children (outcomes about schooling choices). Then I discuss each trend and theme in detail before specifying how qualitative findings coincide with the religious institution typology and intensity of religiosity scale described in the methodology

section. The final discussion section raises some relevant issues associated with the qualitative analysis, PPPs, and education policy in general.

6.1 - Hypotheses

The figure below shows a chart depicting hypotheses about qualitative analysis findings that might be validated or rejected by the actual data collected. Since the qualitative analysis is based on the smallest unit of analysis, which is the individual, the first two boxes in the chart show the factors that can shape the priorities and experiences of each parent. Following Rothstein (2004), there are both external and internal factors that can shape the individual.

Figure 8 – Hypotheses about how parents choose schools



External factors can include issues that are beyond the control of an individual (unless collective action takes place). An example of these external factors is the political climate of a community where the community can range from a relatively smaller unit, such as a city, to a larger unit, such as Pakistan's foreign relations. This is also related to the geographical location of the individual because for instance, parents living in cities and with more access to the media

will possibly be more aware of Pakistani politics. They will consequently form more informed opinions about external influences and be more conscious of what they would like their children to learn. Economic and social external factors also refer to macro aspects of what can affect parents' priorities and hence what they would like their children to learn in school (La Porta et al., 1998; Ogbu, 1992).

It can be argued that individuals can choose which external factor affects them by choosing their location. However, for low income groups, relocation is often not an option. Moreover, external factors themselves can be a hindrance to relocation, such as war, so that leaving Pakistan or restive areas within Pakistan (such as South Waziristan) might not be possible. In addition, before relocation, external factors have probably already shaped parents' thought processes and priorities.

Internal factors are issues that can directly influence an individual. They are mentioned in the figure above and are self-explanatory – family, work experiences, unusual circumstances (such as death or illness in family), and income levels etc. A mixture of external and internal factors can influence parental thought processes in terms of what they would like to achieve for their children, if and how they teach in schools, and if/how they differentiate between girls and boys. All of these will in turn affect the type of school parents choose for their children – public or private, which class of private (elite or not), school cost, teaching quality, student achievement, non-achievement outcomes, student body etc.

The next section discusses findings through qualitative data analysis and considers whether or not the findings are similar to the hypotheses.

6.2 – Findings – Parental Processes

Findings are summarized in the table below. The column labeled "Interviews" is highlighted because findings are based mostly on interview data. This is because among the three qualitative data sources used, participants felt most comfortable with individual expression of their thoughts rather than through focus groups so that interviews would be a more accurate representation of participants' responses. In addition to the external and internal factors mentioned in the hypotheses chart, there were other factors and processes that emerged through data collection and analysis. They included power relationships within a family (mother versus father influencing school choice) as an added internal factor. More parent processes emerged too including parenthood related to self-worth; aims in life; lack of gender bias; and taking children's feedback and preferences into account before choosing schools. These are all explained in more detail in the table below and the discussion that follows.

Table 6 – Main findings of the qualitative analysis

Findings	**Observations**	**Interviews**	**Focus Groups**
Parenthood related to self-worth and self-awareness	Hand gestures and facial expressions.	More significant for mothers.	Mothers discerned self-worth more keenly than fathers did.
Family background makes a difference in the kind of education that parents want for their children	Personality	Role of religion while growing up affects the kinds of schools that parents want for their children.	Participants gave personal examples about different experiences and priorities.
Mothers are stronger decision-makers versus	Mothers talked more; they talked with more force and conviction; and	Although fathers mostly have opinions, a mother's preferences are the final	Mothers feel that they have a bigger right over their children not only because

fathers	they had counter-arguments in case their husbands disagreed.	deciding factor because it is assumed that a mother will be more involved in a child's overall education.	they have more responsibility, but also because Islam has given mothers a higher status than fathers.
Overall aim in life significantly affected school choice	Especially apparent through parents who taught character building in school. Observation done during regular class timings.	Examples of aims include attaining a high financial status; fulfilling life's purpose to become closer to God or religion; achieve popularity among peers.	Participants from different income groups often had different aims.
No gender bias	Talking in equal detail about sons and daughters	Focused more on the problems/issues faced by sons and daughters; teachers discussed problems faced in dealing with both kinds of students.	Parents agreed or disagreed with each other regarding their personal experiences with their children and focused on personality, not on gender.
Incorporate feedback from children	Explained parents' own opinion(s) with regard to/compared to what their child(ren) thought.	Discussed conflicts between parents and children	Discussed among each other about the similarities and differences among their child(ren)'s opinions and conflicts

Observations were more relevant for parents who were also teachers for whom some of the observations were conducted during regular class hours. They were also possible sometimes when during an interview, a parent's child(ren) happened to interrupt so that I could see the interaction and hear the conversation (for example, a mother asking her son what he learnt in his English class that day).

The analysis below is organized by finding where the finding or conclusion is discussed with support from interview or focus group recordings. However, it is important to keep in mind that findings can often overlap. For instance, a parent feeling that his/her purpose is to raise their children well can be categorized as both a self-worth finding and a life aim finding. Therefore, the classification of examples below is fluid.

Finding 1: Parenthood related to self-worth and self-awareness

One possible theory that can be applied to this particular finding of how parenthood is related to self-worth is the paradox of subjectivity where despite subordination, according to the findings, the subject "becomes self-aware" (Butler, 1997). In Pakistan's educational context, this can possibly refer to the low quality public education that the government "subjects" the country's population to. It can also refer to the high cost private schools that parents have to confront if they want to improve their child(ren)'s education. Another example is the possible lack of "Islamic" education which, according to the interviews, several parents crave for their children. Subjugation can also refer to making circumstance-related school choice decisions that might not follow parental priorities. If parents are subjected to these deficiencies in the education system, it could lead them to become more self-aware of what exactly they seek in quality education and hence potentially affect the schools that the government funds and manages.

It can be counter-argued that a process where parents hope to influence the government is unrealistic. It is probably true (personal communication, PEF, October 4th, 2011) especially if parents are seen as passive citizens and not as active agents (Minow, 2003). Yet it is possible if the only alternative to including Islamic education in mainstream schools is madrassa education, which the government is attempting to curtail (personal communication, PEF, October 6th, 2011). What follows is a discussion of interviews finding wise for all three localities - Lahore, Sargodha, and Kolo.

At a parenting level, self-worth was especially relevant for mothers for whom the most important role they play is being a "good" and responsible parent. On an educational teaching and administrative level for parents who taught and managed schools, self-worth was often

related to the flexibility in teaching that faculty members could enjoy so that they could realize their own potential as well as impart the quality of education they deemed important. A teacher in an elite private school described that discussions about religion among colleagues were "very rare" and even deliberately avoided. However, about her time in class with her students, the same teacher mentioned:

> …when it comes to classroom, that was something that would invariably creep in and I would encourage that. Because being a language teacher one needs to be talking about on so many different dimensions and I would say that language class is the safest way you can talk about religion. Because in such a way that you were not as such preaching the religion, it was under the garb of language development and one's opinion. People did not feel that their religion was being threatened or whatever they would say they would be judged on that. In a language class, it's most that we are having a discussion. What would you say so they were more like how they were putting their words rather than what they were saying. So it was easier.

Therefore, on one hand, faculty members in most types of schools did feel that it was important to have religion as a significant component of the curriculum for both boys and girls. On the other hand, both teachers and students in elite private schools were subjected to a dilemma about their identity and about being open about it, versus achieving high grades in their examinations. Although I did not interview students (under the assumption that at a young age, parents and not students choose schools), faculty members described their students, especially 14-16 year olds who had to take international standardized tests, such as University of Cambridge's Ordinary-level (O-level) exams:

> (1) In O-levels when they were to attempt their essays and their compositions, it's very interesting what they would talk about…some of them would write about religion, and their beliefs and how they felt and that one had to sort of be very, very careful with because I did not want to stop them from thinking about who

> they are and how they were. But I would also get apprehensive because I know that this also might affect their grade, it might. So the challenge was to teach them, to voice their opinion but to put it in a more socially appropriate way and they shouldn't come across putting it very strongly.
>
> (2) I really liked the environment, in the sense that it seemed tough at that time but the thing I really liked about Convent[137]. The other thing I really liked about Convent was that we were allowed to be who we were. In the sense most people thought that because we were studying in a missionary school we invariably would have either very liberal or we give up on our religion totally. But I think I am a better Muslim by far I think in my own opinion. I remember milad from my old convent days. We used to have a milad[138], yes we used to have Christmas carols and all but I remember the other opportunities we got for reciting Ghalib and Iqbal[139] and all that, So I really liked the effort that the nuns put in and I really don't remember at all them preaching or trying to convert us in any overt or covert way.

The above quotes show that teachers and administrators, especially those who had experienced a different educational experience and who were often also parents of children in the same school were, in a way, "subjected" to certain social norms and constraints that prevented them and their children/students from giving full rein to their thoughts and identity. Teachers in similar schools both in Lahore and Sargodha described that slightly older students, especially girls, were aware of this mutual exclusiveness and struggled to find the "right" balance between their thoughts and academic actions. Often, students became confused and swung from one extreme to the other – from being very confident about their religion and culture, to being

[137] Convent of Jesus and Mary is a girls' missionary school in Lahore although Christianity is not taught as a subject. Equivalent schools for boys are St. Joseph's and St. Anthony's public schools.

[138] Gathering for religious songs.

[139] Famous past Urdu poets.

acutely aware of the international academic requirements that did not reward students who were open about their identity.

This dilemma not only subjected teachers and students, but also parents who were torn about which part of their identity to cater towards the most – providing their children with the best possible education in terms of building their characters, ethics, and personality versus an education that would make their children "successful in worldly things.[140]" This dilemma also led to school-hopping until parents decided what they preferred the most. Through interviews and focus groups, it was apparent that neither set of parents were completely satisfied - one set felt that their children were not receiving high quality "secular" education whereas the other set felt their children were not receiving high quality, or even satisfactory, "life and character building education." It is important to note that life and character building education does not necessarily correspond to religious education although as will be seen later, interviewees often assumed that teaching religion would lead to life, ethics, and character building education.

As a solution to this dilemma, some parents chose secular schools but in order to do justice to their role as parents and preserve their "self-worth," they encouraged discussions about religion at home: "…the kind of person I am and what we are as a family, we believe in that if somebody is saying it, it does not impact us and what we feel about we are very clear on it." Another solution to this dilemma was parents catering towards both secular and ethical/religious education by using one for boys and the other for girls so the household overall had a balance[141].

[140] In other words, this is related to the notion of Human Capital Theory.

[141] Which type of education was chosen for boys and girls respectively was up to parental preferences although there did not seem to be any apparent gender bias in the preferences.

Therefore, parents – and even teachers who are parents – found it difficult to find the right balance between what they think should be the priority(ies) and the decisions they take that might not follow these priorities. The dichotomy is related to being subjected to circumstances, such as international testing, that make parenting decisions difficult. However, making the right decisions about being good parents and being good teachers that encourage thinking skills can lead to self-awareness and self-worth because according to some interviewees, parenthood then becomes a responsibility that is performed well because it is not subjected to other influences.

The next section combines the second and third findings because they are inter-dependent since family background can influence a parent's personality, and in turn, this personality can influence how parents interact with or think about their children's education and religion.

Findings 2 and 3: Family background and personality

As far as family background and personality are concerned in influencing attitudes towards Islam in education, I draw on an example of an upper-middle class, female vice principal in Lahore. Ghausia Ahmed (name changed for privacy) can provide a useful representation of how teachers/administrators in an Islamic school make educational decisions for their children, at least in one large urban city in Punjab. Related to Newcomb (2008), it is true that the ability to use patriarchal norms to one's advantage in some situations depends on social position. Ahmed had a high social position not only because of her high education, but also because she was the first wife of an established architect and hence more respected in society (personal communication, September 20th, 2011). In turn, her high education was due to

her father who had let and made her study in the best institutions and hence shaped her personality. Ahmed says:

> I used to be his [father's] favorite child…I was his type, very particular about things. I used to understand things if he only said them once, he didn't have to repeat anything. Then I got very good grades so he used to really admire me and look up to me…used to tell people 'look at my daughter'…I remember his love…Basically my father always wanted us to be at the best of institutions…so my father when he got the survey done about which were the best schools in Lahore, there was also Convent, Sacred Heart was there too…he didn't want to admit us there[Convent is originally a missionary school although it does not teach Christianity as a religion] because he wanted a good education and private schooling was good

Significantly, besides her social position as a member of the upper middle class, religion was an important source of Ahmed being able to maintain a large degree of control over her life. Religious was also a source of Ahmed being able to work at Islamic Grammar School (IGS)[142]. For instance,

> I used to like it [listening to religious stories[143]], that's why I'm here today… when I talk to children the next day at the assembly, I know I'm telling them, I'm a model, I'm a model to them but if I'm not doing it myself, whatever I say will automatically have a hesitation…so if I'm practicing and I'm saying something, whatever I say has a force.

In other words, religion provided Ahmed with internal and social tools to navigate her personal and social space at home and at the school she worked in. In terms of navigating space and whether or not territories "when described as an eternal and unchanging 'culture' or 'religion'" (Newcomb, 2008, pg. 100) are difficult to overcome, it seems that in Ahmed's case, it

[142]The name of the school has been changed for privacy reasons.

[143] Brackets are the author's own to explain the phrase in the rest of the interview's context.

is important to differentiate between the conceptual territories (religion itself) and practical territories (as religion is practiced in Lahore and maybe Pakistan in general). For religion itself, there does not seem to be a desire to change it but for its practice, Ahmed certainly thinks change is desirable and through the school she works in, it is possible as well. This relates to the concept of paternalism because Ahmed has willingly adopted the paternalistic role through education. Again within the school, Ahmed has complete authority over teacher recruitment, curricula, administration, and the entire learning process of the school's students (equally for boys and girls). This can be described in further detail below where Ahmed discusses her children's education.

For parents who were not teachers or did not hold any administrative positions in schools, answers to the interview questions had both similarities and differences. The similarities depended on social class and position whereas differences depended on gender and geographical location (large city, town, and village).

In family background among the upper middle class in both Lahore and Sargodha, mothers who did not work often saw themselves as "home maker[s]" (Interview 1, September 5th, 2011) such that the most important role they played was as a parent versus a wife, a daughter, a sister etc. About 80 percent of this sample group (upper middle class females) were born in or married into families where their parents and grandparents had practiced religion in terms of its rituals (for instance, the five pillars of Islam – belief in one God, prayer, fasting, alms-giving, and pilgrimage) rather than engaging in discussions about any aspect of religion. For instance, one upper middle class mother in Lahore mentioned:

> Their [the children's] grandparents are absolutely practical about Islam, they are like five times regular prayer, they will offer prayer, they will recite Qur'an everyday, my father in law like he gets up every morning and everyday he offers two nafils of shukrana [gratitude] for God that whatever He has given him so they don't have to say it vocally that much…I am too vocal about it, my number two my second daughter and my third one who is quarter to six they both are really, you know, they would say it loud…[about her husband] He is a practical one he does not verbally no, I told you my in laws they are not the verbal type but they are the practical type.

However, even if religion was not verbally present in her house, she was keen on ensuring Islam played a significant role in her children's lives. About discussions of religion at home (ethics, politics, rituals), she mentioned:

> That [discussion about Islamic ethics] is constant because it's my kid's age, you know they are in that age where I need to teach them about first of all to be a good human being, like Hazoor (SAW)[144] said a person who is not a good human being cannot become a good Muslim…I start a talk, I tell them about Islam, whatever they are doing in life, I describe that situation from a relative angle, this is what I do, fulfill everything, and they do sometimes like my second one she got a creative writing from school, it is a political thing you were saying this thing just came up, she, her teacher gave her a letter that it is a bit of the creative writing that write like if you want to ask a question ever in the world, who will that be and what will that question be she answered surprisingly, being a kid in class 4, she wrote a letter to Raymond Davis, and she asked him that why did you kill those Pakistanis and what would have it felt if a Pakistani had killed an American, she had done a number of questions and I was surprised.
> …[asking her children what is] taught in school I do…like when they are watching television, I sit with them and watch the programs, then I tell them the American aspect and the religious aspects that what are these channels and what are these programs doing to your brain. You watch them but do not acquire or obtain or whatever they are trying, the culture they are trying to impose upon you, don't grab that just take the good things.

From observation, interviews, and focus groups in both cities (Lahore and Sargodha), it was interesting to note that such attitudes towards instilling Islam into their children's lives

[144] Referring to Prophet Muhammad according to Islam.

existed in two strands of upper and upper-middle class parents – one strand that already belonged to a religious household, and the other strand that originally did not belong to a religious household but through their life experiences, they had decided to come closer to Islam. The latter was more true for mothers than for fathers because, in the Pakistani context, mothers often took a more active interest in their children's schooling than their husbands[145]. Among several parents that I interviewed, it was apparent that sometimes mothers mostly took a greater initiative than fathers in building their children's identity and personality through religion. Upon probing, the reasons for mothers taking this greater initiative ranged from the family dynamics mothers had experienced in their own lives as children, to fathers assuming that their greater responsibility and parental role was reserved for "out of the house work." This is significant because if mothers took more interest in their children's schooling than fathers, it could also mean that this was the role husbands had assigned to their wives (i.e. fathers had assigned to mothers) rather than mothers themselves being the active agent in adopting the role. On the contrary, if mothers did take up the initiative on their own, it could also imply them bringing home a certain type of "out of the house work" – in this case, their children's education.

An example of a family experience that led one parent to place more importance on religion is the following: "…my life really changed when my mother passed away and it really made me I really saw, when I really saw her dying and it really pinched me and I got very close to Allah."[146]

[145] It is always assumed that a child belongs to a married couple since childbirth outside of marriage is considered a religious and social taboo.

[146] Muslims often refer to God as Allah, which means One.

However, there are exceptions to this trend, such as interviewed mothers who were more influenced by their fathers than their mothers. For instance, one mother described that her father was strict in terms of religion although her mother wasn't because her mother's family was "very educated." In a way, the interviewee was linking the extent of religiosity – however she defined it – to an individual's educational background so that more education meant less religious.

Among low income groups, there did not seem to be a significant difference in attitudes between religious or non-religious households and parents because no household was starkly religious or non-religious. For instance, almost everyone in Kolo mentioned that religion is important but they also mentioned that they themselves are not very practicing although they would like their children to be (this is a possible socially desirable answer). Yet, it was difficult for their children to attend mosque school or have an individual Qur'an teacher because they had to help their parents financially and did not have much extra time. This was true for both girls who helped in household chores and boys who helped their fathers in agricultural fields.

Another group of interviewees included parents who considered themselves belonging to an upper-middle class and had worked as teachers or administrators in schools earlier in their lives but recently were only housewives or unemployed. Most of these interviewees described themselves as "self-made" in terms of bringing themselves up from a previously middle class status. Therefore, these parents lie at the cross-section of middle and upper-middle classes and can share a more nuanced perspective. Some of these parents were deeply affected by the financial and emotional instability of their middle class lives so that they wanted their children to have more stability and access to opportunities. Besides secular education, they introduced religion into their children's lives through discussion. One mother mentioned that

> In fact, there should be comparative religions. First I didn't put on Star Plus [an Indian TV channel with mostly soap operas and music shows] but now I do and show them to my kids and ask them. Not at a small age... but after 14 years, they're pretty sure and mature enough to make out what's right and what's wrong… I ask them things that you aren't doing things for me, you aren't doing them for Allah so whatever you do, you have to decide right and wrong in everything. Sometimes I used to have them list advantages and disadvantages of some things. I tell them that if you're doing something good, it's not for me. If you are, it's for your own good. If you believe that Someone [at the Day of Judgment] will ask you about them, then it'll make a difference on what you do and don't do.

Interestingly, the difference between middle income class interviewees and upper-middle class interviewees was that in both Lahore and Sargodha, upper middle class parents had thought out their actions in more detail and were more conscious of the consequences of education on their children. Middle income class parents had mixed opinions – some were slightly more concerned with providing their children with an education that would bring them lucrative job opportunities rather than the quality of or the role of religion in their children's education. Others – and this comprised the majority of middle class fathers and mothers – felt Islam was "lacking" in Pakistan's society and needed to have a stronger presence. Significantly, the government was mostly blamed for rampant "corruption" so that parents felt it was important to instill correct values in children at an early age when they were still in school. When I asked how these values could be best inculcated, they mentioned two main methods – one, that teachers had to be role models, especially because boys were more difficult to discipline otherwise; and two, Islam was the "only solution" in teaching these values. However, if there was lack of trust that parents had in the government[147], consequences of a PPP policy where religious schools are funded can be mixed.

[147] Related to the concept of trust and social capital; See Appendix D.

An example of how teachers should be role models (since modesty is an important value in Pakistan for both religious and cultural reasons) is conveyed by the following quote from a father:

> I was studying in a co education and I mean the type of clothes she [teacher] used to wear I don't know I should mention this or not but the boys in my class used to make fun of her in a very dirty way and she used to come and talk about religion you know somehow, everybody used to make fun of her that she is portraying something else and she is not really what she is.

Another finding was that often interviewees – no matter which income group they belonged to – seemed to desire the same things (i.e. values and ethics) in their children's schooling that other interviewees explained in the context of Islam. For instance, one mother who claimed she was not religious and that religion was not frequently discussed in her house talked about instilling the same ethics in her children that other parents discussed because they believed that is what Islam teaches. This mother based her attitude towards the education she desired for her children on her own experience and family background:

> Although I was going to the best school in Pakistan but I still feel the education system in Pakistan is not up to the standard, it is more of a ratta [rote learning] system. I would like Amal [her daughter] to have an education more on a research base and things have changed in Pakistan especially in Lahore in my city where people were not brand conscious at all. And now when I go to Amal's school and pick up people talk to you after looking at your bag or the kind of car you have got it has become a pain as to the kind of environment it is now we never grew up, we made friends by looking at the families and their background and values system and now people make friends by looking at their car their brands the kind of clothes they wear[148], it's pretty weird and I make sure Amal doesn't grow up like that. At times she sees so she says I want something like that "mummy I want to have a big car and I want a bag like that," so I tell her it's not important who you are the kind of person you are that is more important

[148] Interestingly, this is more true for girls than for boys, at least in the sample I used.

Such parents – both fathers and mothers - also seemed to have similar discussions at home (after marriage).[149] According to them, although Islam per se did not come up because "only grandparents offered prayers regularly," the parents instilled values in their children's lives, such as keeping "good" company, being polite towards "helpers" and not wasting food because otherwise it can be given to a poor person (concepts of politeness and charity in many religions). When asked about religion in their children's schools, the response was often similar to the following:

> In school they focus on manners and generally they fit your kids to international standards … they don't prepare your kids to basically islamiyat [Islamic Studies as a subject] is not important anymore in Pakistan.

In almost all upper, upper-middle, and middle class interviews, there was a consensus about which way the society is going – "it is going both ways, ziada kharab ho raha hai [it is getting worse] but side by side people are also trying to know [about Islam]" and interestingly, these trends neither vary by class[150], nor by location. Again, as described before, the solution in most people's opinions seems to be Islamic values:

> See religion is not only Quran [Muslims' Holy Book] and namaz [prayer], it really is, it makes you groomed, that is really important, Islam ki jo basic values hain [Islam's basic values] they are wonderful, if you read Quran and you understand generally if everyone stops lying to society bohat behtar ho jae gi [will become much better] if everyone stops fooling I mean just that one little difference can change the whole society.

[149] Before marriage, parents' involvement in religion dependent on family dynamics. For instance, if one child went to a missionary school while his/her sibling went to a Shia school despite being Sunni, discussions at home about teachings would have been probably long and rich (Shia and Sunni refer to two Muslim sects).

[150] Middle and lower income groups are discussed later in more detail.

The reason why there is similarity between upper-middle and middle classes is partly because of their common educational experiences, which in turn are part of their similar family and incomes (also suggested by Rothstein, 2004; Manski, 2000). Similar educational experiences either encourage parents to desire a similar educational experience for their children if they found it satisfactory (socially and academically) and a different one otherwise. For instance:

> …what I liked most about Convent was that we were all from the same background, all the girls were, we had the same kind of families, even I have I still am very good friends with the girls of my school, we were the same kind of people, the same kind of social background that we come from and there were no pressures as such and the only pressure was that of studying in exams and later on also and bit of fashion, consciousness crept in but not that much.

Besides middle and high income groups, low income groups in cities and in the village seemed to have a similar thought process about the kind of educational experience they would like for their children. Ideally, their children would not face any social pressure while receiving a high quality education:

> TV these days is spoiling our children. Girls care about fashion too much and watch movies and boys care about roaming around with friends and sometime don't even go to school. Even if we aren't educated, we didn't do that, we listened to our parents more. We keep telling them to not listen to their awara [being unproductive and sometimes indulging in immoral (according to Islam) acts, such as drugs and drinking] friends and to go to school. But some parents also don't care. They have too many children to feed and take care of to think about education.

In other words, even low income parents – both fathers and mothers - base their attitudes to some extent on their own family background and upbringing, which possibly taught them to

be more productive and care about education because they "listened to our parents more." In turn, they emphasized this for their children.

The next section digs deeper into how parents' backgrounds and personality might be related to their aims in life.

Finding 4 – Personal Aims

Personal aims in life of parents are not necessarily the same as their aims for their children. This is where the findings differed very finely from the hypotheses, which stated only aims for children. Often personal aims and aims for children overlapped. However, many parents were consciously aware of their overall purpose in life and could point out how raising their children would allow them to fulfill their own purpose. For instance, an upper-middle class parent mentioned how his aim would be to encourage spirituality and socializing of society (first of their children) through Islam:

> I would look at religion as a more social orientation and you cannot take it away because then all that is left for the parent would be preaching because then what context would the child put good behavior into? It is said as religion and spirituality, we are human beings and we're to be nice to other people and it's not good to be mean and not nice, snatching things and all that.

For parents belonging to low income groups in cities or those living in cities, 60 percent of the sample said that their aim was to give their children what they did not have – a high quality education. When I probed what they meant by a good education, parents replied that they were referring to an education through which their children could become "baray and acchay log" [big and good people]. In other words, parents wanted their children to become highly

respected members of society, not only because of the clout they had depending on job or social status, but also because of the kind of character and personality they had. For instance:

> As I have said religious spiritual moral ethical education, ab [now] if there's no shadow or hint of that then the parents' work become difficult because religion where are they going to practice their religion not just at home, see, so that religion or those values are balanced at school as well, they meet that balance at school because that's the social skill.

This is very similar to what some middle and upper-middle class parents want for their children's education so that it can be argued that rather than income group, parents' personalities or personal aims (perhaps shaped by experiences or surroundings) matter for the kind of education their children ideally receive. The above passage also shows the nuance between personal aims and aims for children because according to more detail in the interviews, it is the "parents' work" to ensure that they themselves led wholesome lives. In order to have such a life, it was important that they provide their children with the kind of education that would allow parents to tell God that they tried to fulfill their mission and raise "good" people.

In contrast, 30 percent of interviewees among all income groups said that their aim in life was to give their children a happy, comfortable life and ensure that they had financial and marital stability when the children grew up. For them, education was not a necessary component of the stable life they wanted their children to lead because "a good education without a job" was not useful. The remaining 10 percent said that they were not sure what their aim in life was.

While describing their life aims and how they consider religion to be an important part of how their children are groomed, middle and upper-middle income parents also went on to suggest some ways of including religion in education. This is briefly mentioned here:

> All comes into the context of religion, you might name it differently but the context is religion or spirituality or moral values so it should be taught in Pakistan. In all sorts of schools, that is the problem in Pakistan, see, ab [now] how and who teaches it that remains a problem but because that is the problem we cannot say no to it, you see, we have to say yes to it knowing the who and how problem, so it has to be across board… Well, I hope you realize that I am talking in a very utopian context here, very utopian because given the problems like language issue [teacher skills], this is another issue to which there is no solution to, at least not now, till we have got all context right till we have got all things working, who should it [religious studies in schools] be taught by as I said by normal, average human beings.

A more detailed description of how religion can be included in schools to provide a comprehensive education and help parents achieve their aims can be provided through some specific school examples in both Lahore and Sargodha that currently follow this model. Although it is beyond the scope of this dissertation to discuss these schools, it can be an area for potential future research so that the government can explore options to partner with private schools whose education models (combining religion and secular education) provide an educational outcome preferred by parents. [151]

Findings 5 and 6 – No gender bias, and incorporating children's feedback

.

Although I expected to see a gender bias in terms of both the quantity and content of education that parents wanted for their daughters versus sons or what future they envisioned for

[151] Many parents from all income groups in Lahore and even Sargodha mentioned that they had heard of, knew someone who studied in, or their own children studied in such schools that promised to combine religious and secular education and excel in both.

girls versus boys, I was not able to discern a noticeable difference in the parents' attitudes towards different genders. For instance, one low income parent from Kolo said:

> Boy or girl, Allah has told everyone to study. So I want to send all my children to school. My girls even go more happily, the boys are more irresponsible. I just want them all to study for now. It is good for the future and it also keeps them out of trouble.

This attitude was consistent throughout the sample, all income levels and all localities. I expected a difference partly because of other studies and statistics (enrollment, repetition etc.), even by Pakistan's Ministry of Education, and partly because of my findings in the quantitative section of this dissertation where boys often achieved higher scores than girls. However, the lack of difference between what parents want for sons and daughters augurs well for the government so far because they might not have to form varying policies towards girls and boys except for equity reasons. Of course, this cannot be a definite conclusion without further research.

The next finding is interesting because it incorporates the other unit of interest besides the parent – the child him/herself. I had not mentioned the student in the hypothesis because through most quantitative studies, it appears that at younger levels of education, parents are the decision makers for their children. However, through the interviews and focus groups, I realized that children themselves are often considered active agents because they can not only shape what and how they learn but also where they learn. This is especially apparent through parental decision making based on how "well" their child is performing in a given school ("well" can be looked at both academically and socially) or how "well" a certain school's environment brings out the strengths of the child. This section later discusses this in more detail when describing how parents often choose schools based on their children's different personalities. However, here I

would like to give an example of how at the school-entry level, children's questions and inquisitiveness can possibly influence the parental decision making process. In response to an interview question about children's learning processes and if religion can play a role at a very early age, a parent who had also worked at a primary level private school responded:

> [Understanding and exploring] is as natural as it is learning to walk, learning to see, differentiate between mauve and lilac, so how can it be anything, how can you delay it, my question is not when to start it, it is how can you delay it, children by nature are inquisitive beings, they would ask you questions, we don't know how to interpret them, we don't even know where they are coming from but they are really coming from within them, they'd ask k Allah mian nazar kiu nahi aata? [why can't we see God?]… these kind of processes are already stirring within the child, so how can one say ke 'let's put it on hold, and we'll decide when the child is ready.' The child is ever ready for it, so don't put it on hold…take it along as it comes and when the child starts schooling it should slip in.

The child here is considered as an active agent in the learning process because he or she is continuously being affected by teachers and giving feedback about what is being taught. Parents who think it is important to treat children as part of the decision making process will take the child(ren)'s opinion or personality into account. Interestingly, parents in all income groups and in all locations seemed to give slightly more weightage to their teenage daughters' than to their teenage sons' opinions perhaps because they felt girls matured early.

Parents of children who are older and in college also provided an interesting perspective to this finding. The interview questions asked about discussions about religion at home. As we would expect and as interviews showed, at a younger age, parents are usually the ones who bring up religion in terms of praying, fasting, or ethics although several parents mentioned that children and their grandparents bonded through discussions about Islam and the five pillars.

However, one family in my sample had college-going children who were raised in the Middle East. According to their father, his children (both son and daughter) brought up religion at home on their own, even when they were little, because Arabic and Qur'an were woven into the school curriculum (exceptions were international school systems like Chouiefat in Lahore). This led the parents to seek answers so that overall it was a dynamic process, which the father appreciated and wished was available in Pakistani schools as well. Coming from outside Pakistan, he felt he could tell what the education system lacked, which was morals and ethics. According to him, the best way to teach morals and ethics along with academics was to incorporate Qur'an and Arabic into the regular mainstream schools at a very early age because those beginning school years are the most impressionable for children. He also suggested that starting from 6th grade, children can learn the Qur'an with explanation because that is essential for the children's "foundation and moral development."

Parents often emphasize the five pillars while children often focus on ethics and morals. This is especially true for middle class parents whose children are enrolled in medium or low cost private schools. Most middle class parents mentioned how their children, especially daughters, who are in 5th grade and above come home and discuss what their Islamic Studies teacher talked about. However, it is mostly parents who begin religious discussions at home and that too in the context of asking their children to pray and fast regularly. This could be partly because middle class parents had to help their own parents when they were young because hiring helpers was expensive. So either they studied up to a certain point and then dropped out or there was a limited choice of subjects and schools they could attend (mostly the ones closer to their house). This sense of deprivation about how they could not access all the resources they now

think are important leads the middle class parents to want their children to attend the best schools and receive a comprehensive education so that children sometimes influenced their parents' school choice but not always. During interviews and focus groups, this was mostly true for both Lahore and Sargodha's middle income classes.

For Kolo, almost everyone belonged to a low income group so that even though children aspired to be active agents and attend school, their parents simply had to say that their family could not afford it before children stopped attending school. Girls were expected to help in household chores as well as taking care of cattle while boys were expected to help in the fields. There was still no gender bias in the sense that parents did not mention educating boys was more important than educating girls or vice versa except that sometimes the reason differed by gender. For instance, boys should study because otherwise they would fall into bad habits, and girls should study because as future mothers, they would have the greatest influence over her children's lives. However, some parents did mention that their children had watched television and become more aware of schooling so that these children had chosen to attend morning or evening shifts, depending on when their household workload was less heavy. Some children happened to enter the room (which happened often enough in Kolo but less so in Lahore and Sargodha) during the interview and their parent explained to them what we were talking about. If the child was not intimidated, usually because he or she was slightly older, he or she sat down next to the parent and listened closely. Both I and the parent felt slightly self-conscious at first in front of the child but in a few minutes, the conversation was back on track.

In terms of how chlidren's feedback can be incorporated into the school they attend or the kind of education they receive, the daughter of a middle class mother in Sargodha also joined us

who had recently begun college. She offered quite illuminating answers on some issues, such as her brothers' education and how their adjustment to a certain school mattered a great deal. One of the brothers had changed three schools before settling into one where religion was stressed while the youngest one was adjusting to a different school that belonged to a family friend. The daughter herself studied in a boarding school and mentioned that although she thought religion was very significant, she reached the conclusion herself after seeing her parents praying and fasting. Therefore, she was the active agent herself. She mentioned that to get high grades, "50% praying matters and 40% hard work but hardwork 100% [without praying], it will matter [only] 40%." Yet she did not like enforcement so any family pressure made her resist being religious. Overall though, religion was again actively chosen to be a private realm than a schooling one except for one of the sons, and self-motivation and independent decision making played a large role in this family.

After discussing findings about processes that influence how parents think, the next section describes the actual school choices made and hence more closely answers this dissertation's second research question about how Islam is related to educational decision making.

6.3 – Outcome – How Parental Preferences influence Educational Decision-Making

The previous section described parents' experiences and background whereas this section will discuss given their opinions, how parents make educational decisions about their children, especially in terms of which schools they send their children to. I restrict myself to parents who

had experiences in Pakistan although several upper-middle and middle class parents mentioned that international experiences (e.g. in Saudi Arabia where children who knew Arabic were more knowledgeable about Islam than Pakistani adults) also influenced how they perceived their children's future and current potential. This is because experiences in Pakistan might make the sample more comparable with each other because 80 percent of the sample had no international experience.

Paternalism

As mentioned in the earlier section, at the general school level, choice of schools by parents in Lahore and Sargodha who are also teachers seems to have a somewhat paternalistic relationship. The concept of paternalism as it relates to social classes or circles seems more applicable to parents who also work in schools as administrators, such as Ghausia Ahmed, because there is a top-down relationship – Ahmed describes the school's responsibility and hence her responsibility - to help, change, and prevent children from ethical downfall. This is why her children are enrolled in and she works at a school that instills Islamic values in them so that she has both a personal and an idealistic stake in the school. She says:

> So I feel that today, the way we spend life today, that unless you bring in religion, religious knowledge and you implement, the degradation in this world will keep worsening. There's no other solution besides this. That we catch onto our religious values through education. Put a religious aspect in education. And it's completely possible. Children will never be inspired unless older people set an example.

As far as educational decision making is concerned, Ahmed describes her son's old, secular school:

> I thought a co-teacher would listen to me so I told her some guidelines and rules, when you talk to kids in the morning, just tell them to say Salam [Peace] and it'll be sadaqa-e-jariya [concept of reward even after death] because if one child, only one child, at any point in his or her life start says Salam and whoever he says it to, whenever he says it, you'll get rewarded even if you're in your grave and then he'll teach his kids, his kids will teach their kids…even if you aren't there you'll get rewarded. Allah doesn't let reward go to waste, 'I'll write it down and I'll make sure it's delivered.' And the teacher became stunned and I was like you have such a good opportunity, even if you bring one child closer to Allah, bring him, you'll be rewarded and you know she was listening to me like this [makes an expression]. And then later I went and she was telling me how I told her something really nice and now I tell my own children the same thing. So I just opened that window in her mind…and I inspired her there. She said it to me again and I said you can do that in everything, it's not difficult.

Overall, Newcomb's (2008) idea of the significance of social position playing a key role in helping women "navigate" their social space(s) seems to apply to Ahmed whose social spaces have been her father's house (high income group and provided with high-end education); her husband's house (status as first wife); and the school that she heads. Owing partly to her social and education background, and religious attitude, she has managed to create a position of formal authority for herself at school and of informal authority at home. She has taken on the leadership, paternalistic role in educating children and has imbued the rest of the school staff and faculty with the same attitude. Conversely, the teachers that join this school are somewhat self-selected – they feel a responsibility not only towards themselves (to achieve a high spiritual level by being around similarly religiously minded people), but also towards raising the next generation to be ethical, productive, and socially cohesive citizens.

A similar sense of paternalism was apparent in the village Kolo in terms of the non-profit school taking on the responsibility for enrolling out-of-school children and imparting quality education because parents did not have the time or education required to guide their children.

Similarly for mosque schools, the teacher was mostly a qari (person who teaches the Qur'an) so that although he was on a government payroll, he might also feel a sense of responsibility to provide children with education for the sake of Islam. Hence according to interviews, low income parents are often satisfied with sending their children to any type of school in the hope that their children will learn "something at least."

Dilemma - Upper middle class families dissatisfied with both secular and religious education

Again for parents who did not work or teach, several upper middle class mothers took active interest in their daughters' education no matter what school they studied in. For instance, Lahore Grammar School (LGS) is considered a top-notch, elite, and secular school for girls and boys (separate campuses for both genders). One family's eldest 13 year old daughter studies there about which her mother said:

> I'm not that satisfied with Grammar. Grammar is getting better like after class 7. It's gotten much better. It has another worldly knowledge, you would say a sense of thinking, on another level you would say… air of Grammar freedom and a little sense of thinking for their own …[but] for Grammar I would like them to study a little more, much much more because the burden is just on the mother you have to teach to read you have to teach them to write.

It is obvious that an elite school that is supposed to have at least a satisfactory secular education is unable to provide it not only for this mother's daughters, but also for many other upper middle class parents that I interviewed most of whose daughters and sons study in LGS.

For the same mother who is quoted above, her feelings about the role of religion in her eldest daughter's school life at LGS:

> …my daughter is in Grammar na, she is the eldest and she is 13 and is class 8, and she has a book called by Martin Ling, a Christian by the name Mohammad. And the school has started Islamiyat [Islamic Studies] in class 6, before that they did not have any Islamiyat curriculum. Nothing. And Martin Ling has totally quoted bible and other books, so they have no information about prophet (saw) from their own religion's point of view and the first image that is put into their brains is by a Christian, there's no comparison.

A family with children studying in different schools have the opportunity to compare these schools not only from their children's experiences but also from the parents' own experiences in dealing with schools. For instance, one parent comparing LGS with another school, Learning Alliance, which is not as elite, mentioned:

> Learning Alliance is I would say that they really do a very good job like the basic education… the faculty is amazing, they will also listen to you, though they say the principal and the people who are running basically people who own the school are dominant, from a different sect but the Islam and all I am completely satisfied with the religious syllabus…yes, if I don't like anything I go there and I am very comfortably telling them that I don't like this, like Sarah [one of her daughters at Learning Alliance] last year had a male dancing teacher, they just introduced him in the school and the first day I gave the application to her and when she presented the application to the teacher. The next day the whole class got an application, and they just cut the classes out.

Moreover, movement between schools seems to be fluid and shaped by parents when they experience one school after the other. However, generally these parents are not completely satisfied with the education imparted by any specific school type. Some parents who wanted their children to receive religious education were not sure what kind of Islamic school of

thought[152] would be taught in a religious school so that they were unsure of the type of school they would be satisfied with. Another household experimented with the youngest child, shifting him back and forth between Islamic and secular schools where parents finally settled on an Islamic school because they aspired to have him become a balanced and competitive religious scholar.

Changing classes and localities - Rising from middle class to upper-middle class

The sample of interviewees who described themselves as having risen from a middle class to an upper-middle class status in both Sargodha and Lahore had a slightly different experience in choosing schools for their children. Whereas a few years ago, one of the main considerations in choosing their children's schools might have been the expense (middle class parents), the consideration now had mostly changed to convenience or the quality of education (middle class parents had become upper middle parents). For instance, one parent described his experience:

> Salamat [an Islamic school in Lahore] was a nightmare, teachers were very bad and academics weren't good at all and were more inclined towards kids taking tuition and then shifted to Mrs. Ali's branch [of LGS] because the kids get a lot of importance and then there were moral values in the sense that they weren't allowed to leave the school before 12 so there were some restrictions. Although when Saba [his daughter] went to Mrs. Neelam's branch [of LGS] but I was not happy because I feel that there, teachers didn't want to take responsibility. So comparing the two although when they're the same owners, they're very different. Mrs. Ali's was much more organized and in Mrs. Neelam's, it's much more inclined towards fashion and teachers don't want to take responsibility.

[152] There are four main Sunni Islamic schools of thought – Shafai, Hanafi, Maliki, and Hanbali. Hanafi is the most common in South Asia.

Another parent in the same sample described his reason for his son's choice of school: " The only reason he's in that school is because it's near and because it's a reputable name and up to some extent, you can call it a status symbol, the building is nice, otherwise nothing."

The first parent quoted actively looked for the right school and teachers for his child(ren) while the second parent quoted showed how besides education, status symbol was important in choosing schools for families who were becoming more wealthy. The different in attitudes between the two parents - and other similar ones – could be due to their own family background and personality as described before and does not differ according to their child(ren)'s gender. This is related to how parents' priorities changed based on their experiences.

Changing priorities

When I asked parents about how they made a decision about which school to enroll their child in or change schools, the most common answer was either their own good or bad experience of having studied in the same school (if they were young enough) or word of mouth especially if they had moved into a new city recently. Often these two reasons clashed. For instance, if a mother or a father had studied in a particular school and had had a wonderful experience, they might not enroll their child(ren) in the same school because "it was not the same anymore." This could be true because the school was actually not of its previous standard, or because the parents' circumstances or opinions had changed. This could be especially true if the parents had initially wanted their child(ren) to attend an elite private school but over the years, their priorities might have changed to wanting a school where the child(ren) would be comfortable. This could be because: "As a person I had reverted to a very laid back down to

earth life… I said it won't be the same social class [at a certain private school] and…I don't think I'll be able to handle it and snooty ban jayengay [they'll become snooty] and so I decided against it."

The above quote also shows that the concept of humility and modesty that Islam emphasizes was brought up by a parent who preferred the same values but not in a religious light.

Although many parents mentioned that their own parents were a strong influence on their religious attitudes, a few were cognizant of how their childhood as well as adult experiences had led them to decide what kind of school they wanted for their children. For instance, one mother who described herself at the intersection of middle and upper-middle income group, mentioned how she had "partied" as a young girl and had been driven away from religion by her young brother's death. Her father had also been driven away from religion – "gone off track" - after her mother's death. However, as life went on and she went for pilgrimage[153] to Mecca (in Saudi Arabia), there was a "drastic change" and she recognized that her upbringing had lacked morals and ethics. She felt she was old enough to recognize that for her own children, she would want a different experience. According to her, she wanted to ensure that her children did not waste the earlier part of their lives by having the "wrong" priorities; for instance, she wanted them to feel closer to God from the very beginning. Therefore, she had enrolled her sons and daughters in an Islamic school even though it did not offer the best secular education in the city because she is "100 percent" sure her children will receive good grooming from the Islamic school.

[153] Pilgrimage is one of the five pillars of Islam. The other pillars are belief in one God, praying, fasting, and alms-giving.

Another factor in educational decision making that was brought forth was how mothers are more influential in choosing schools than fathers. This is true of the mother described above and discussed in the next section.

Mothers are stronger decision makers

A common response regarding who was dominant in making school educational decisions was that between parents, mothers were the more forceful influence. Several parents mentioned how the father and mother had had long and heated debates about which school(s) to choose for their child(ren). Mostly, the reason for arguments was different priorities; if one wanted to follow a certain elitist culture, the other focused more on convenience and distance to schools. If one wanted to follow a family legacy of every boy in the family attending one particular school, his or her spouse wanted to experiment with a more innovative model of learning. Of course, these arguments only occurred in certain income groups that could afford more than one type of school. For instance, even if fathers in my interview sample were very keen on an Islamic school, unless mothers agreed, it was difficult for fathers to make an independent choice. For one couple, seeing her daughter dancing to a Bollywood (Indian film industry) song in her current secular school convinced the mother to send her daughter to an Islamic school (although still after "checking out the new school for a year" to ensure there was a balanced education).

In low income groups in cities and in Kolo, the norm was mothers making education related decisions for their children because fathers had a greater financial responsibility to support the family so they had little time to research and evaluate school choices. Often, a

married couple's family functioned as if a single mother was the head of household. The most common reason was fathers being away from the locality, either in another city or in another country, so that for all practical purposes, mothers were the only decision makers for their children. However, in Kolo, the choice was mostly between sending the child to school or not, rather than which school to send the child to because there was limited choice – the available schools include one public and one private non-profit school.

Choosing schools based on teachers

Parents can also choose schools based on the kind of Islamic Studies teacher in a secular school versus teachers in an overall self-defined Islamic school. Most middle and upper-middle class parents feel that an Islamic Studies teacher should be a role model in terms of ethics but not necessarily in terms of appearance (e.g. beard for men and hijab for women). Most middle class parents felt that appearance also mattered and that first, praying and fasting need to be "on track" before character building and ethics are focused on. Village parents do not have a choice since there are only two schools but they are quick to voice their satisfaction or dissatisfaction with a teacher and outline their concept of an ideal teacher – one that makes the children interested in studying, who does not hit children, and who arrives in class on time every day. This shows that religiosity of teacher(s) was not a deciding factor for village and even other low income parents.

Some parents from all income groups in all three localities felt that the teachers' role in developing a child, especially an Islamic or Social Studies teacher, was not restricted to discussing rituals, such as praying, fasting, and pilgrimage. The role extended to being a role model and discussing the teachings of Islam in terms of relationships with humans and with God.

For instance, gratitude and humility were concepts that a teacher should discuss with children of any age so that learning rituals and character-building happen simultaneously. Therefore, parents, especially teacher parents, usually wanted to look at the teaching philosophy of a school before enrolling their children into that particular school. In contrast, some upper-middle class parents in my interview sample thought that religion in a public and school setting was not the ideal situation because they did not "trust" the teachers or the schools to impart the "right concepts" about Islam to their children so that they would prefer secular schools.

Religion is important but children study in secular schools

On a related note, parents who had stressed the importance of religion in children's lives described that they had still enrolled their children in secular schools because of the school's status symbol and also because there was no competitive alternative that ensured a "good" future for their children financially and socially. This was mainly due to the other "crowd" that attended these high quality private schools where children came from "really good families." Among low or middle income families, this consisted of sending their children to any private school because private schools in general were assumed to be more expensive and provide better quality education than public schools. In these cases, attending any private school was a status symbol rather than a specific one.

Among some interviewees, when asked how parents had compared one school to the other, parents mentioned that there was no need to compare schools and they already knew which were the best schools. This could be because of other family members sending their

children to a particular school so that interviewed parents either felt peer pressure, or did not want their children to grow up dissatisfied with their secular education. For these reasons, sometimes parents still enrolled their children in secular schools although they felt there was too much "freedom" in some private schools where "children were smoking during school hours." According to some parents, even public schools were better in this regard because they were strict about what happened on their grounds and smoking was not allowed. This implied that although some parents, if their priority was character building, would have preferred sending their children to an Islamic school or even a strict public school rather than a secular private school, which allowed too much freedom to children who were too small to differentiate between "right" and "wrong."

Madrassas automatically came up in some interviews when I asked parents about religion in education. Some parents mentioned that madrassas were the lesser evil as long as the teacher was educated and "balanced enough." Others – and these were the majority – whose children studied in secular schools felt that instead of madrassas, regular secular schools should incorporate Islamic values. This will help children feel that religion is easy and can be practiced on a daily basis instead of religion being relegated to a completely different institution that is only attended by a small minority of the population.

Moreover, there were parents who wanted their children to have a high quality secular education and if religious education was not provided in schools, they wanted their children to at least not be driven away from religion. For this, some medium and high cost private schools have come up with a unique solution in order to satisfy parents. These schools reassure parents that

they will not interfere with a child's personal beliefs and will be only concerned with his or her overall development. For instance, according to a teacher parent:

> …when they bring a child to school, they are trusting us with the child's upbringing…and it is in no way be going to take their child's religious understandings… not values because values are universal, religious understanding hai na it is best left to the parents. At school, we tell them and I am very particular about this that they should know that the child will get an environment where the child will develop understanding, whatever understanding is, be it the understanding of the world or an understanding of themselves or an understanding their religion or God.

Such school attitudes at least reassure parents that what they teach children at home will not be countered by the school so that both secular and religious educations can go along simultaneously.

In Kolo, while some parents seemed unsure of what they wanted for their children in terms of education, others were clear enough in their opinions to know that children can learn about religion, especially studying Qur'an with its explanation, even after completing their secular education. However, learning Qur'anic recitation (as opposed to explanation) was still more important at a very early age and could be learnt alongside secular education.

Sometimes, if parents felt that religion was important but their children studied in secular schools, the reason could be that they considered religion to be a personal choice and phenomenon as described below.

Religion should be in a private realm

Some parents – no matter which income group they belonged to – did feel that religion was more of a private realm in the house rather than a public realm in the school. Therefore, the

motivation(s) behind which school they enrolled their children could be several but did not include religion. For instance, some of these motivations behind school choice could be driven by a school's status symbol; accessibility (especially a consistent school system that was available in most cities, such as Beaconhouse or City School, or the only available school in a village); convenience (other children from the same family studying in the same school; brothers accompanying sisters to school in the village); and knowing someone who taught in the child's school. Moreover, the number of choices mattered as well. For instance, Lahore has many more options than Sargodha does simply because it is a larger city while Kolo hardly has a choice of one or two schools. However, given the scale of choices in Lahore and Sargodha, the motivation for choosing schools for low, middle, and upper-middle classes were similar.

Underlying – or in addition to - all these reasons for restricting religion to the private realm could be a very simple motivation – parents' personalities. Parents who are more focused on the family as a unit might be satisfied or even prefer discussion religion in a private setting. For instance,

> I would find it very interesting and at times disturbing also, when I would see that parents would come and talking about that we are shias and aap nay class may ye kaha or aap nay wo kaha [you said this and that in the class] but I as a parent, I never brought it up. I did not, there was no need for me to bring it up because I understood that what is being taught there in the classroom was a syllabus and what the parameters and even my children know that, whatever religion they are carrying with them as such is what we have given them from home.

If religion is significant to how parents raise their children, including it in a private realm is almost a necessity if children study in schools that are either entirely secular or were originally missionary schools.

Exception – Christian missionary schools

An outlier or exception to the general rule of parents choosing secular versus religious schools was that of St. Anthony's and Convent of Jesus and Mary in both Lahore and Sargodha. Given that Convents are missionary schools, it could be assumed that Muslim parents would not prefer to send their children to such schools. However, both boys and girls missionary schools no longer preach Christianity. Rather, they are still considered a status symbol by most interviewees who knew about it. For instance, in Lahore's Convent, there is always a long registration list with mostly Muslims applicants and Christian nuns making admission and all other school management decisions. One parent who had studied in the Convent described it:

> I have never given that much thought but now that you ask I think they are operating in a very conventional Islamized kind of an environment. They wouldn't want to threaten or in any way be considered a threat and then not be able to do what they are doing with regard to giving good education. I think they have to operate on those lines otherwise they would not have been able to survive in this very very religion conscious society.

One of the key phrases here is "good education," which in the rest of the interview with this participant seemed to be defined as building values, ethics, character, and polish within the Convent's female student body. As with Islam and Islamic schools, a Christian missionary school is also assumed to provide "good" education. Conversely, again unlike most religious schools that focus on Islam as a religion, the Convent cannot be openly Christian because, according to one of its alumni:

> …they [nuns] knew what it would bring about and they understood it very well and they very subtly kept it out, not a taboo as such that we couldn't talk about religion as such but they thought it was more of 'so talk beyond religion' kind of thing.

However, unlike many Islamic schools, the Convent of Jesus and Mary has built a reputation as being one of the best secular education-providers to girls in Lahore and Sargodha[154]. Their education is considered secular because they do not teach or preach Christianity as a religion although they still try to impart ethics to their students.

Another interviewee was a low income Christian mother whose children went to a predominantly Christian school. When I questioned her about her children's experiences and how she chose that school, she mentioned three main things – first, the school was close to her house; second, the "parhai" or studies were up to par because of good teachers; and third, religion was taught in an open-minded way. After probing, she mentioned that by open-minded, she meant that Muslims could study Islam and Christians could study Christianity in her children's school. Moreover, she personally did not feel threatened even if only Islam was taught because no matter what religion it was, it was the "same God." This was an interesting perspective because someone belonging to a religious minority group lived and studied among the majority Muslim population and instead of being uncomfortable with mixed religion schools, she felt they were helpful because they promoted unity. In other words, she appreciated different religions being taught in the same school and wanted her children to study in such an environment. In terms of earlier discussions in the literature review, this form of trust can be related to social capital and cohesion, which can be considered one of the aims of PPPs. Another form of trust or distrust in a society is the feeling of safety and security, and lack of it respectively.

[154] Christian missionary schools for boys, such as St. Anthony's, do not have as strong a reputation as the Convents.

Security

Significantly, one additional factor that I had not initially expected but which did influence many parents' school choice was "security" by which they meant safety. Parents wanted their children to feel a similar sense of security that" they had felt when they went to school decades ago." For this reason, several parents opted for schools in locations that were considered safer, such as the Cantonment area in Lahore. Furthermore, lack of security was also the reason why some parents did not want their children to attend Islamic schools; in other words, they felt that Islamic schools might be the "target" of one religious sect or the other. However, security was mostly a consideration in a large urban city like Lahore. It did not seem to be a significant consideration in Sargodha and Kolo where the parents denied thinking about security even after I specifically asked a question about their children's safety.

Choosing schools based on children's personalities

Only two interviewees mentioned choosing their children's schools based on the children's different personalities. For one, although both her sons went to elite schools in Lahore, there was enough choice available to the mother (her husband had passed away) that she could choose a more competitive school for her more outgoing son, and a slightly smaller school for her younger son. According to her, the younger son was quieter and needed more individual attention to bring out his debating skills. For the other parent, it was clear to him that his son could not take too much academic pressure because according to the father, he had observed his son over the years and felt that his son was in need of overall grooming rather than just academics. Due to this reason, the father wanted a school with a large campus because it would

provide his son with an "open environment and broadmindedness." The first parent belonged to an upper-middle class family in Lahore and the second one belonged to a middle class family in Sargodha. Both of them had considered other schools but had reached a realization about their particular priorities. Related to personality was student performance so that if children did not do well in school, such as memorizing the Qur'an, because they were not interested in it or felt unable to live up to the challenge, parents felt forced to change their children's school. This was the case especially in some low and middle class families in Sargodha. In Kolo, some parents mentioned that they wanted their children's personalities and habits to change so that they enjoyed education and attending school although the parents recognized that one or two schools were not varied enough to cater towards each child's preferences. The reason why even two schools were available was because a non-government organization (NGO) aiming to expand educational access had set up a school in Kolo.

Schools taking up responsibility for low income parents

Although most of my sample was restricted to for-profit private schools, there were some parents in Kolo who mentioned having to pay a subsidized fee for their children to attend a non-profit or NGO school while the majority of village children attended Kolo's public school. Parents mentioned how the only alternative to what they considered was a low quality public education was the non-profit NGO school because they felt that private schools treated their children better and took on a larger responsibility on their behalf. For low income groups where parents themselves were not very well educated, it was important to choose schools where

teachers and staff took up some of the role that parents played in cities or higher income groups. This role often included teaching children cleanliness, ethics, and building their character.

In line with Gutmann (1987), it was clear through interviews that although parents in the village might not be well educated or even literate, they were aware enough to know that they wanted the opposite for their children. For parents who could not even afford the non-profit school in Kolo, there were always mosque schools, which taught the Qur'an but also added a few secular subjects. How well the teacher taught at the mosque school compared to other schools was not clear. However, interviews also showed that even when there was a viable alternative, parents were willing to send their children – both girls and boys – to a mosque school, at least until the primary education level, because they felt that learning how to read the Qur'an was important so that children could differentiate between right and wrong. This was true for the majority of parents in Kolo.

Children taking on their own responsibility

In a few instances in the village, it was interesting to see that instead of, or besides, parents, children were the ones taking the initiative to study in school. Inspired by either their mosque school or friends, the children had enrolled themselves in not just primary and middle schools, but also in secondary schools and were responsibly getting good grades. A mother of two such children mentioned that she completely trusted her children in terms of how, what, and where they studied. She concerned herself only in providing the fees and had deliberately never

even gone to meet the school teacher to ask how her children were doing[155]. Such understanding between parents and children was rare. Upon probing, this understanding of children feeling responsible for themselves existed usually in households where mothers were mostly single because of the husband's death or parents' divorce. In this particular case, the widowed mother's trust and hard work had inspired her children to reach their potential and aspire to get out of their current circumstances by acquiring jobs in a city.

In the village, some parents mentioned how their children, especially daughters, were extremely keen on learning about Islam and spreading the knowledge further. There were often differences among siblings too. While some were not interested in studying anything, others wanted to study the Qur'an, yet others wanted to study both secular and Qur'anic education.

Overall, while there might have been some researcher bias, almost all parents, especially mothers, were keen on gaining both secular and Islamic education. Some believed one education type was more important than the other if they had to choose. Otherwise in the ideal situation, parents would prefer their children studied one type of education alongside the other type.

Learning the Qur'an outside school

Similar to the concept of mosque schools in the village, 80 percent of parents in Lahore and Sargodha (all income classes) had employed a Qur'an teacher (called Qari) who came to their houses in afternoons or evenings to teach Qur'an to their children alongside their other secular schooling. Some parents were happy with their qaris while others mentioned that it would be much easier for the children if Qur'an was taught at school, especially because boys

[155] Incidentally, this mother was part of the school management committee but in accordance with quantitative findings, parents and female members of SMCs were either not that involved or that influential in a school's daily management.

seemed to have a difficult time getting back into the "study mode" again in the evenings. However, parents felt that the presence of a Qur'an teacher at home or in school was definitely necessary even if the child had completed the Qur'an once because then the child needed to "stay in touch with it." This was the norm until about 6th grade for most children (especially girls who were reaching puberty), after which the qaris left although many parents said they would like to have their children understand the Qur'an but there was little time and opportunity.

In Kolo, several parents mentioned that before the mosque school was set up, they sent their children to family friends whose children were older and knew the Qur'an so that their younger children could learn Qur'anic recitation from them. This was true for both boys and girls. However, after learning the Qur'an, boys often went to school and girls either studied the Qur'an in more detail or went to school as well. The latter usually depended on the children's own preferences.

Significantly, Kolo also mentioned how there was an Islamic course in the village that taught young boys and girls Qur'an, songs about Islam, and prayers. They also had a program for older girls (but not for older boys because of unavailability of male teachers) so there were two types of parents who sent their daughters to this program. One type considered Islamic education more important than secular education; and the other type (a larger proportion) wanted their daughters to learn both types of education simultaneously but they were hindered by the lack of secular secondary education in the same village (in either the public school or the non-profit school). The Islamic course had a weekly one hour lesson for mothers as well that they enjoyed and told me about because according to the mothers, it taught them "how to speak, how to walk, how to treat others." According to all parents, the atmosphere of the village had been

considerably improved by this course especially because it focused more on ethics besides Qur'anic recitation. Even more importantly, the children themselves were satisfied with the education provided. This was apparent through what some children said when they happened to come into the room when their parents were being interviewed and also apparent from what their parents mentioned about their children's interest in their education.

In terms of external validity, this extra Islamic course makes it difficult to generalize Kolo to other villages as well. However, parents did mention that girls from some neighboring villages also joined the course and then went back to teach children in their villages of origin. They predicted and informed me that in a few years, these other villages will probably be similar to Kolo in terms of the type of education that both parents and children want.

The next section summarizes parental processes and output in terms of school choice.

6.4 - Summary

So far, this chapter has discussed hypotheses and findings related to the second research question in this dissertation – how does Islam matter for parents' educational decision making? This question in turn implies: how can the answer to the second research question be related to the government's education policy regarding school types (including PPPs)? Qualitative methods have been used to answer the second research question. Although a triangulation approach was adopted – observations, interviews, and focus groups – findings were mostly based on interview data because participants talked more openly on a one-to-one basis since religion was a very personal issue for most participants. Findings show that ethics and value building, and being better Muslims and citizens is a desired educational outcome by parents that can potentially be

linked to PPP goals of social cohesion. This is the result of the second research question that was more investigative and dealt with finding the result of the interaction between schools and parents.

According to my hypotheses, both internal and external factors go through a certain process of parental preferences and result in a particular school choice (which is ultimately related to parents' desired educational outcome(s)). These were mostly confirmed by the findings, which were on two levels – one level identified the factors that could influence how parents thought and their priorities; and the second level identified how these thoughts and priorities took shape in the actual school choice. For instance, family background and personality could potentially influence how parents felt about religion being a private or public space. In turn, this could influence whether or not the parent chose a secular or religious school, respectively. Another example is how mothers were stronger decision makers when it came to their children's education, which could lead them to either impose a certain school on their children based on security, or choose schools based on her children's different personalities (e.g. outgoing versus introverted).

When it comes to the main question of religion in education, especially in the mainstream education system, the vast majority of parents felt that schools should include both secular and religious components in their curricula. This can be for ideological reasons where parents' desired educational outcome was a more united, ethical, and identity-cognizant personality for their children. Although some parents wanted this outcome but were unsure of how to achieve it, others were certain that the only process that could achieve this outcome was teaching Islam in mainstream education. A marginal reason for including religion in schools was convenience – it

would be easier than having Qur'an teachers (or qaris) come to the house each day after school ended.

In this sense, according to the typology of schools that the qualitative methods outlined in chapter 5, the second educational outcome that parents desired for their children – ethics and identity – was possible through the "hybrid" school category. This is because hybrid schools included both secular and Islamic components in their curricula and even management (e.g. how staff dealt with each other and the students). In the religious typology graph, these hybrid schools would be closest to school type 8 in terms of funding, management, curricula, and ownership.

This categorization seems representative of the sample selected (although not Punjab's population) because upon asking, teachers and parents from all classes and all localities provided a unanimous answer - there should be a combination of religious and secular education in one educational institution in both urban and rural areas. Further probing showed that living in rural versus urban areas did not make a difference in parents feeling that they themselves do not know enough about Islam. Yet they are all still aware enough to know what they would like for their children - the ideal education they want for their children includes secular and Islamic components in mainstream schools because they feel it is important for Islam to be an "added thing." According to both parents and teachers, it is not just the parents' responsibility to provide an environment conducive to learning ethics and religion. Instead, the school, teachers, and government have to help the parents because otherwise the dichotomy between home and school life will "confuse" their children.

Therefore, the public feels that the government has the responsibility and authority to implement change. The government is trying to implement change through organizations, such

as the Punjab Education Foundation, which supports public-private partnerships. The missing component is knowing the kind of change that should be brought about, potentially through public-private partnerships. One of these changes is shown by the Punjab Education Foundation's aim of increasing educational quality as measured by test scores, which indirectly means that private schools have to become more efficient in producing education. The other kind of change was possibly shown through qualitative analysis – parents wanting more religious, ethical, and identity-forming components in schools in order to produce a socially cohesive society with "good" Muslims and citizens. The next section discusses further policy implications of this research.

5.5 - Discussion

The discussion at the end of the quantitative analysis in chapter 4 focused on examining PPPs as a method to increase test scores and evaluating the existing contract between the government and private schools. It focused on the "how" of different school types after parents had already made their educational decisions. In contrast, the qualitative analysis in chapter 5 focuses on the "why" of parental decision making.

The qualitative analysis attempted to answer the second research question – how do subjective factors, especially those related to Islam, relate to parental educational decision making about school choice? This question is significant given the recent attention placed on Islam especially after 9/11 as well as the lack of attention on religion in mainstream education rather than in madrassas (Shafiq, 2010). Briefly, findings brought forth an overwhelming trend of how hardly any parent was satisfied with the current education his/her child(ren) receives. As

consumers of schooling, they attempted to maximize their and their children's short and long-term utility. Parents' utility would increase if their ideal education was provided to their children. According to parents as well as teachers who were parents, their ideal education did not exist, which would have consisted of the right combination of contemporary and religious/ethical education where neither was considered mutually exclusive.

From an institutional perspective, while PPPs can be considered to represent governance, results from the qualitative section can be considered to represent culture, which is more nuanced in terms of how individuals and groups interact with each other. The aspect of culture most relevant to this dissertation is religion since Pakistan is a predominantly Muslim country and I am looking at Punjab, which has more or less a similar culture throughout the province. While there have been quantitative studies on how religious schools have performed on standardized tests (e.g. Sander, 1996; Neal, 1997), I adopt a bottom-up approach in this chapter. The methodology I have adopted is not a perfect case study; however, it serves the purpose of this dissertation, which is to show how individuals from different income groups and different geographical areas perceive their children's education. Since part of the sample was collected through a snowballing effect, it is possible to have some bias in terms of the class or motivations of individuals who were similar or knew each other. However, I made a concerted effort to keep the sample diverse yet focused enough to answer the research question.

One important finding that this chapter brought forth is that parents have no gender bias in terms of which child – son or daughter – they prefer to enroll in school whether or not this was actually the case or if there was researcher bias at work here. However, boys often perform better on Punjab Examination Commission's standardized exams than girls although the FAS program

focuses almost equally on both girls and boys' schools. This can imply that depending on the goal, either the government can focus on boys' education to increase overall achievement or also focus on girls' education in order to achieve gender equity. This is also discussed in the next chapter that focuses on future research and policy implications.

This discussion is a useful point to combine a few concepts brought up in literature the religion and educational decision making. One concept is related to Ibn Khaldun's asabiyya (Ahmad, 2002), which shows that a society ultimately leads itself to self-correction. In contrast, Minow (2003) describes communities to usually have passive citizens who are not active agents. Interviews in this qualitative analysis showed that parents did not seem passive in terms of their educational preferences for their children. Moreover, although this dissertation did not focus on hybrid schools, there are citizens forming such schools that combine secular and religious education in order to provide an alternative source of education to currently dissatisfied parents who wanted their children to learn ethics and religion besides achieving high scores (personal communication, November 13th, 2011).

Additionally, as part of self-correction whether a society is active or passive, the government's aid of religious schools has often been discussed. Besides quantitative studies on Catholic schools, Minow (2003) mentions that the U.S. government ends up providing aid to religious schools because the borders between religiosity and secular nature of a school are often blurred. Moreover, if, based on the results of this dissertation, the government decides to fund schools that encourage Islamic values, it indirectly means that the government is subsidizing religious behavior and ethics. This is because the opportunity cost for secular behavior (i.e. secular schools) is higher in terms of more potential future returns on wages. To reduce the

opportunity cost, the government also reduces the cost of schooling that encourages both secular and religious behavior. However, since the opportunity cost will vary from individual to individual and family to family (Backiny-Yetna & Wodon, 2009b), it is important to analyze schooling decisions made by parents and students, such as through the interviews discussed in this chapter.

One link between the qualitative analysis and PPPs, such as the FAS program, has to do with how partner schools can ensure their students perform well. It seems after this chapter that if partner schools incorporate more parental opinion into their education – or perhaps they already do – their teamwork can ensure that students' education at school is reinforced at home and vice versa. The Punjab Education Foundation can also include a related clause in its terms of partnership or perhaps include a parental questionnaire in its school monitoring (provided it has a reasonable cost). Although parents and other stakeholders can have conflicting viewpoints, including all stakeholders in making decisions regarding students' education can increase chances of a higher quality and comprehensive education, as well as foster trust and social capital as a result of teamwork.

The next chapter further elaborates on possible future research and policy implications based on both quantitative and qualitative analyses conducted in this dissertation.

Chapter 7 – PPPs, Policy, and Research Implications

This dissertation can have both significant future research and policy implications based on the importance of its topic, research until now, and findings from its quantitative and qualitative analyses. The dissertation began with two research questions: 1) how do public, private, and public private partnership schools relate to student achievement? and 2) how does Islam matter for parental educational decision-making? These questions represent two levels of interaction respectively – top-to-bottom interaction between government policy and schools; and bottom-to-top between individuals and schools. An example of the first level of interaction is how a decision is made by the private school to apply for funding and a decision is made by the government to disburse the funding to that specific private school.[156] In other words, a decision is made by both the government and the private school to enter into a public-private partnership.[157] An example of the second level of interaction is how a decision is made by parents to choose a certain school and school type (in this case, school types are public, private, and PPP schools) and a decision is made by the school for which students to enroll. Combining the two levels of interaction is significant in policy-making as will be discussed later.

[156] Since the definition of institutions used in this dissertation included governance, it is important to know that before implementing any education related policy (or other socially related policies), the governance perspective on institutions and public/private sector dynamics does not necessarily depict the entire reality (Stoker, 1998). Like other theories, the governance perspective on theory and policy provides a conceptual framework in analyzing processes and outputs such as economic growth and student achievement (Rodrik et al., 2004). However, the applicability and credibility of this perspective depends on the time and location. For instance, whereas the dependent variable in education and economic studies a few years ago was education enrollment, it has more recently shifted to student achievement (e.g. through international standardized testing through TIMSS and PISA).

[157] This decision is arguably driven by market forces where proft-maximizing schools understand what parents want – high quality education – and in order to cater towards that demand, they partner with the public sector.

Findings from the dissertation indicate that public-private partnerships (PPPs) are significantly related to an increase in test scores and more so for 5th rather than 8th grades. The same is true for private schools although the increase for PPP schools is greater than the increase for private schools. Moreover, parental preferences indicate that the current education system in Punjab, Pakistan, does not provide enough school choice for parents to be satisfied with their child(ren)'s schooling. Instead, rather than just student achievement, a large consideration in the ideal education for their children includes the children learning ethics and forming civic identity, which most of them believe will come through teaching Islam in the mainstream education system. Again, the two levels of interaction – between the government and schools, and between parents and schools – can be combined to inform the government's future educational policy (through parental preferences) regarding its potential goals of efficiency, equity, school choice, and social cohesion.

This chapter is organized as follows: since the difference between PPP and public schools seems so marked, I will first describe PPP dynamics, strengths, and weaknesses in more detail (chapter 4 also discusses them) as well as discuss FAS policy related issues. Next, some other policy implications of this dissertation's research are described while the third section of this chapter outlines some areas of possible future research. The fourth and last section concludes the dissertation.

7.1 – PPP Dynamics

According to the framework set out by Levin (1999) and Patrinos et al., (2009), government goals of PPPs can include productive efficiency, equity, and social cohesion. These

goals are described in more detail in chapter two; however, the most significant lesson learnt by discussing these goals is that there is a trade-off among these goals. Private goals (for example, higher earnings) can deviate from social/public goals (for example, gender equity in education) so that individual utility is not necessarily attained by maximizing social/public utility. The government attempts to strike the best combination of these goals to maximize utility (social, public, or private as preferred by the government) (Levin, 1999; 2002). Inadvertently this leads to some goals taking precedence over others. For instance, by attempting to reach the highest productive efficiency by enrolling more boys (assuming that boys have higher test scores), gender equity can be compromised because fewer girls are now enrolled since school enrollment capacity is limited. Since Punjab Education Foundation (PEF) attempts to increase education quality through PPPs (supply-side), how do PPPs relate to productive efficiency (to increase education quality) in the FAS program as well as the general context of education in Pakistan?[158]

Patrinos et al. (2009) argue that differentiating between finance and management in education is a useful way of categorizing PPPs in education[159]. For instance, there can be public-private partnerships between private schools and the government (such as voucher programs for faith based schools and the FAS program in Punjab, Pakistan) as management and finance respectively to improve education outcomes – expansion (e.g. enrollment) and quality (e.g. student achievement). There can also be partnerships between public schools and private businesses (such as education management organizations) as finance and management

[158] PPPs related specifically to the FAS program are also discussed in the discussion section at the end of chapter 4.

[159] When examining the economics of education PPPs in more detail, it is first important to realize that most existing literature is either by policy advocates or is concerned with construction contracts (except some studies on vouchers) rather than focusing on government financing of private initiatives, such as private education (De Bettignies & Ross, 2004).

respectively to improve an education process - school operations. In other words, PPPs consist of several key factors that can be further analyzed – contract/partnership between the government and private service provider in terms of which partner finances and which partner manages; specific quantity and quality of a particular service (in this case, education); and a mutually agreed upon price and duration (Taylor, 2003). This dissertation focuses on the partnership between the government and private service provider (i.e. private schools) which, through the contract, provide finance and management respectively.

PPP Contracts

As far as contracts representing PPPs are concerned, De Bettignies and Ross (2004) imply that PPP contracts can include the public and private breakdowns of four tasks: defining and designing the project; financing the capital costs of the project; building the physical assets; and operating and maintaining the assets to deliver services. The FAS program seems to deal mostly with the fourth task where private schools operate and maintain schools in order to provide higher quality education. In this case, the government does not finance the capital costs; instead, it is involved in providing subsidies per student, which can be interpreted as the government financing the school's operating costs per student. However, if the school's expenditure per student decreases, it also means that the school possibly has extra resources to invest in capital or physical facilities. Thus the contracting out of providing educational services is the basis of PPPs in the FAS program where the government temporarily provides ownership of services to the private partner schools[160]. Bundling also exists in the FAS program because

[160] Patrinos et al. (2009) have described seven types of PPPs in education according to how contracts are structured. Out of these seven types described in the conceptual framework, the FAS program seems to fall most accurately into

although it seems that private schools are only concerned with the management of education provision, saved operating costs and PEF facilities requirements indirectly lead the partner schools to also build physical assets. If there was another education PPP aimed at expanding education instead of only improving quality (i.e. increasing enrollment), government subsidies could perhaps be used to build more capital (e.g. buildings) and not only provide services. Therefore, the PPP contract as a process has the advantage of encouraging its private school partners to invest more in physical inputs of education provision and expansion. The contract between PEF and a FAS program school is shown in Appendix C.

However, generally, in terms of evaluating PPP structure to gauge their success, PPP contracts often have the disadvantage of suffering from "contractual incompleteness" (Valila, 2005, p. 102; Galetovic et al., 2009)[161]. This means that the public sector (the government agency contracting out to the private sector) rarely specifies expectations and output clearly and concretely enough for the private sector to deliver that output in its desired quality under all circumstances. PPPs generally have long contractual periods (up to 30 years) and provide public services that can respectively increase uncertainty and difficulty in monitoring output. Due to contractual incompleteness, efficiency can decrease if the private service provider does not have to maintain quality of the public service. For instance, instead of immediately

---

the support services category. This is because the government represented by PEF is using private schools' services to provide quality education, which is a public service. Moreover, another related PPP type is facility provision, which is also the result of the FAS program because it requires a minimum standard of facilities in its partner schools. Although private schools retain ownership of these facilities and assets, it can be argued that through bundling, the public sector (represented by PEF) has temporary authority over these facilities while the PPP contract stands.

[161] Contract incompleteness is related to the amount of information available to the public and private parties (Schmidt, 1996). For instance, a government can withhold information if it wants more ownership over the good or service or if it wants more efficiency in education production so that the private parties (e.g. FAS partner schools) operate under the threat of losing the public subsidy (e.g. FAS funding for the program school).

withdrawing funding and then ultimately canceling the partnership contract, schools in reality are given two warning notices if they are violating the contract (PEF, 2011). Relating this to the ownership aspect of PPPs described earlier, clear negotiation of contracts is significant in order to ensure efficient and high quality service provision. In terms of the FAS program, this can imply that the government has to clearly specify to the private school partners that its objective is to increase educational quality due to which it subsidizes education and monitors academic performance through QATs. Further, if private school partners are clear about the government's objectives in the contract, it will know that educational quality has to increase (e.g. through teacher training, parental involvement etc.) and not just its indicators (such as test scores).

A possible weakness in the PPP contract is that PEF allows itself to believe students and teachers if they file a complaint against the school management or facilities. Although this can serve to double-check that partner schools meet PEF requirements, it can also mean that students and teachers can file unjustified or false accusations that can cause a valid school to lose its funding and partnership status. Another possible weakness of the contract can be the high supervisory costs it leads to for both the first and second parties (Valila, 2005; Kelman, 2002). For instance, the first party has to perform monthly checks of randomly selected schools whereas the second party has to provide monthly reports, especially of the enrollment levels in each grade and by gender[162]. Additionally, although schools are not allowed to charge students any fee, students have to pay out-of-pocket for standardized tests, such as the PEC exams, that PEF mandates its partner schools to participate in. This does not make private education completely

[162] This gender difference highlighted by PEF is another reason to conduct gender-wise research in the future.

free for students even through the FAS program although it is still probably cheaper than what other private schools charge.

Another weakness of the PPP contract is that due to the BOD having ultimate authority over the finance and management of the FAS program, some school owners or principals might directly contact BOD instead of the designated chain of command, according to which partner schools have to contact FAS program personnel and director first. The partnership agreement could also work in the opposite direction where the school personnel could convince PEF's designated local evaluator to give the school more chances (for instance, to pass the physical inspection, get accurate documentation, un-crowd classrooms) than allowed by the PEF agreement. The official PPP bundling can be compromised in this way, at least for some time.

In terms of the time-frame, the contract is renewed yearly so that it is not considered a long-term commitment by either party. There is also always a risk of the FAS program contract ending before a year is complete based on either contract terms or a decision by PEF's Board of Directors. While this has the advantage of allowing the first party to ensure that private schools do not become complacent in the quality of their education provision, it also has the disadvantage of creating uncertainty for second parties. Another disadvantage of short-term contracts is that although PEF's and the partnering school's desire to increase educational quality is based on increasing productive efficiency, a short-term contract does not necessarily serve the purpose (De Bettignies & Ross, 2004). Instead, they are more likely to raise coordination and regulation costs on behalf of PEF. According to Crocker and Masten (1996), vertical integration is another form of short-term contracts because they are present in an uncertain "exchange" environment, such as in the FAS program agreement. This can imply that ultimately, education

provision is the public sector's responsibility although it has been shifted temporarily to the private sector through a short-term PPP. So far in Pakistan's case, PPPs in education are still a relatively recent phenomenon so that it makes sense that vertical integration and not long-term contracts will be prevalent in the earlier stages. [163]

In addition, a general weakness of PPP contracts is that realistically it is very difficult to contract for every contingency or to predict for uncontrollable circumstances (such as natural disasters). In this case, one solution can be to regularly revise contracts so that they can respond to current circumstances and limitations. This would mean regularly changing the kind of institutional inputs and processes.[164] Another solution could be to design contracts on a case-by-case basis in order to retain efficiency (Seabright, 1996). In PEF's case, this would mean contracts targeted towards each specific school where needed. This can have the advantage of each school having its own mix of inputs and processes in order to produce high quality education although the disadvantage is that forming the contract between each school and PEF can be expensive and time-consuming.

Besides finance/management and contracts, accountability is significant in how PPPs function.

PPP Accountability

Accountability is important because despite establishing a PPP through a contract between PEF and the private partner school, supply-side intervention or public provision of

[163] Valila (2005) also mentions that such PPPs will ultimately increase costs for the government because education provision through PPPs is essentially the private provision of a public good.

[164] Another scenario is where too much contract incompleteness leads to "vertical integration" by the government so that the government itself provides the service and manages the asset (see Appendix) (De Bettignies & Ross, 2004).

education might still be preferable depending on how the partner school behaves, which in turn depends on the values placed on it by the public versus private sector. For instance, assuming that the private party is interested in only profit-maximization at the expense of providing quality education, both PEF and the private party gain from the contract ending. This is because the private school in question can increase the student fees it charges (which it could not under the PEF contract) whereas PEF can transfer its subsidies to another school that does provide higher quality education with reduced costs. Therefore, in equilibrium, accountability will lead to the optimal utility of the PPP being achieved if the maximum benefit of the contract ending is transferred to the party that cares the most about high quality education (Besley & Ghatak, 2001). In the case of the FAS program, it appears that the government cares the most so that if the partner school does not meet the PPP contract conditions, the government can either provide higher quality education itself through public schools[165] or transfer the contract to another private school that values higher quality education.

This is related to the argument by Hart, Schleifer, and Vishny (1997) that even if the private sector provides education at a lower cost, it does not necessarily increase the quality of education provided. One way the FAS program counters this weakness in school ownership and education provision is by conducting Quality Assessment Tests so that it can monitor the quality of education schools provide even if their costs are lowered. However, the quality versus cost argument is based on two main assumptions – a positive relationship between cost and quality (lower costs lead to lower quality); and incomplete contracts. Yet although the FAS program cuts costs of private schools by providing student subsidies, it can be argued that it indirectly expects

[165] This implies that the productive efficiency argument for PPPs might not hold for the provision of public goods (although as described earlier, education can be considered more of a public service than a public good).

the remaining school resources to be used on education quality-improving measures so that school costs are not actually lowered. Whether or not this is mentioned clearly in its contract is less certain, so that accountability can potentially be an issue in the FAS program.

According to Heckman and Vytlacil (2001), conventional treatment parameters, such as propensity score matching used in this dissertation, are theoretical rather than policy relevant exercises. In contrast to theoretical exercises, policy relevant exercises include cost studies, which are often conducted and their scale ranges from classrooms to entire education systems (Coombs & Hallak, 1987; Levin, 1983). Issues related to cost studies of PPPs are discussed below.

PPP Cost Studies

Although the quantitative section showed that FAS program schools perform better on PEC exams than public or other private schools, it is important to look at more widespread and long-term implications of programs like the FAS program before implementing them on a larger scale. For instance, according to past studies, it is not necessary that PPPs are beneficial in the long run because they can cost the government even more if schools default. Moreover, the saved costs due to shifting the education provision burden to the private sector can be overridden by the government investing quite heavily in supervisory costs (Valila, 2005; Boardman et al., 2011)[166]. For the FAS program, cost-studies are especially significant because tuition-free education for students does not mean that the private cost burden disappears; there are non-

[166] This was also apparent through a preliminary cost-benefit analysis where in the long run, the government does not benefit due to saved costs if the FAS program focuses on students that will already have attended another school if not a FAS partner school.

tuition costs as well that can influence demand for education (Tsang, 1997). Therefore, the government might have to complement the FAS program with free textbooks and nutrition, as well as encourage communities' financial help (although this can lead to favoritism and inequities).

Another important example of cost studies is relative educational cost-effectiveness, which is often neglected and underestimated (Tsang, 1997). If private costs are not taken into account, the efficiency of private schools in providing higher quality of education can be overestimated. Methodologically, cost-effectiveness studies of school types can inform policy in terms of how to most increase student achievement while lowering costs. However, cost-effectiveness studies are most useful as comparisons between policies (e.g. encouraging PPPs) and programs (e.g. the FAS program). Since budgetary and expenditure data is not available for other PEF programs, comparisons among its multiple programs is not possible for the purposes of this dissertation. An alternative tool to inform policy is cost-benefit analysis, which is more controversial than cost-effectiveness analysis because it is difficult to identify and quantify all types of private and social benefits.

It is also important to consider if the policy is continuous (as for the FAS program) or a one time "treatment." If these policies interfere with or enhance an existing program, the combination should together maximize their net social benefits. This would be easier to make conclusions about if other programs run by PEF were also analyzed. In addition, better measures of factors, such as future earnings, are needed. For instance, income can include not only earnings, but also other measures of wealth including availability of electricity, electrical

appliances, heat, furniture etc. Overall, research findings as well as social benefits/costs are significant in determining the utility of a PPP, such as the FAS program.

However, assuming that the FAS program does have positive net social benefits considering all factors, there is still the question of how to implement it. The kinds of partner schools that FAS chooses depend to some extent on government goals. This means that if the government aims to increase productive efficiency, which is influenced by school resources and leads to higher utility, schools that perform the highest on test scores should be funded. For instance, if boys are performing better, it could imply that in order to achieve highest overall scores and education quality, the FAS program should focus on incorporating boys' only or co-ed schools into its program. Moreover, 5th grade scores seem to be more strongly related to the FAS program than 8th grade scores so that looking at the marginal increase in test scores, primary schools up till 5th grade should be focused on.

Yet in reality, the aim of public-private partnerships through the FAS program is not just higher education quality, but also higher education equity (PEF, 2010). This could be one reason why the FAS program is concentrated in low income areas, which increases program costs (PEF, 2011). This could also be the reason why over the course of its establishment, the FAS program is incorporating more girls' schools as partners rather than just more boys' schools, which is unlike the general proportion of boys' to girls' schools in Punjab. The higher education equity goal could also lead to the FAS program partnering with an increasing number of both primary and middle schools so that students who finish 5th grade have a high quality middle school alternative rather than just any public or private school. Additionally, the FAS program slightly leans towards rural areas then urban areas where the former have fewer private schools, which

will probably provide lower quality private education than private schools in urban areas (e.g. facility wise). Teacher incentives in the FAS program to situate themselves in any geographical area are a significant portion of how the FAS program attempts to increase rural educational quality. This is despite teacher incentives further increasing program costs while benefits in terms of teacher motivation are unclear.[167]

As mentioned earlier, another aim of PPPs that the FAS program inadvertently fulfills is related to school choice and social cohesion. This is because, as described in the discussion section of chapter four, the kinds of schools that the FAS program ultimately ends up partnering with are those which have a certain social or religious objective in mind. These private schools are looking for means to stay in business and deliver their message and being funded by the FAS program is one way achieving of this aim. Keeping these various schools in business has the advantage of providing school choice to parents and students from the demand side and competition among schools from the supply side.[168] It also has the advantage of targeting another educational outcome brought forth through this dissertation's analysis - ethics and civic identity among students – that can in turn lead to the PPP goal of social cohesion. Yet this outcome is difficult to quantify so that a straightforward PPP policy might miss its target.

Therefore, overall we can assume that PPP schools have been established because they are used as both institutional factors and processes (e.g. through school management, contracts) to increase productive efficiency with quality education as the desired outcome by both PEF and the partner school (due to parental and student demand). However, student attendance in these

[167] FAS program schools are strict about teacher attendance and test scores of each teacher's students.

[168] Several studies have found this to be the case although private schools competing with public schools is still debatable (e.g. Levin, 1998).

PPP schools depends on various factors, one of which is parental choice. If and how parents choose one school over another depends on their preferred educational outcome. If parents prefer their children to learn ethics through a religious education, it can guide the government to channel its funds in the same direction. For instance, the kinds of FAS program schools that applied and are currently funded by PEF often relate themselves to a social or religious objective. This can lead us to assume that the FAS program policy can be continued and expanded by PEF through partnering with schools that advocate a social, ethical or moral objective. Cost-effectiveness is also significant when determining whether to maintain, expand, or decrease the FAS program's coverage in Punjab.

The next section elaborates on some other policy implications of this dissertation's research.

7.2 – Policy Implications

Although this dissertation deals with student achievement, as the first chapter mentioned, student achievement is closely linked to other educational issues, such as dropouts[169], so that it is important to examine multiple educational issues and policies simultaneously. For students who would otherwise be unenrolled (including never enrolled and dropouts), dropout rates can be influenced by both individual and institutional factors, including school type (Rumberger, 2001). Lowering the dropout rate is significant because it can imply improving education quality,

[169] For instance, higher student test scores would be significant for reducing repetition rates and hence reducing dropout rates (Rumberger, 2001). This is because retention can lower student self esteem and motivation and increases the likelihood of a student performing poorly and dropping out.

academic achievement, and the rate of return in the form of earnings. Therefore, policies and intervention strategies to reduce dropout rates can be related to individual and institutional characteristics[170].

Many dropout prevention programs deal with demand-side program strategies (unlike the supply-side FAS program) that aim to provide extra resources to individuals and families to help students stay in school (for instance, vouchers, which are a type of PPP) or with providing alternative school programs that reduce dropout risk (Rumberger, 2011). However, these program strategies should deal with both academic and social engagement of individuals because there are various reasons why students drop out so that all the various factors can be addressed. Moreover, the timing of dropout intervention policies is significant because the earlier the intervention, the more effective it is supposed to be. This is especially true because students who are more likely to drop out later on usually have unresolved problems from a younger age, which cannot necessarily be addressed by a straightforward program (Rumberger, 2011). Instead, the government has to find out the grass-root level situation about student and parental preferences (e.g. about school type) in order to better target its policy audience and timing (such as through this dissertation's second research question). Yet, so far, the evaluation of intervention strategies has not yielded concrete results about the effectiveness of various strategies partly because there is a lack of rigorous evaluation strategies and partly because existing evaluations do not necessarily show program effectiveness (e.g. Dynarski & Gleason, 1998). Moreover, educational outcomes are not necessarily only student achievement or school completion so that other educational outcomes, such as ethics and civic identity, also have to be evaluated.

[170] These are not always observable but they can be ascertained through qualitative research methods, such as interviews and observations.

Sohail Ahmed (YEAR not known) suggests supply-side policies that can be relevant in judging why there is a dropout problem in Pakistan and then mitigating the problem. These policies can include fewer number of school hours per day; different academic calendar in rural areas depending on agricultural crops; use slate instead of exercise books; evening versus morning classes; need-based curriculum e.g. elementary agriculture; and no retention in first or second grades. Although programs targeting individuals (such as PEF's voucher plan) can be influential in countries like Pakistan, large scale changes might be more effective in rendering widespread change (possibly like the FAS program). These large scale changes can be brought about by policies that deal with "the commitments and competencies of the people (teachers, administrators, and staff) and the organizational structure (size, staffing ratio, curriculum design, services, etc.)" (Rumberger, 2001, p. 30). In other words, these policies refer to institutional characteristics that are also adopted by PPPs. However, there are several problems with designing and implementing large scale change so its effectiveness is uncertain. One such problem is the government's political will to increase education quality (which can increase student achievement and reduce dropout rates) and allocate sufficient resources towards achieving this goal.

Besides educational quality, this dissertation also deals with another educational outcome – ethics, religion, and civic identity formation among students. This outcome shows the relationship between education and cultural institutions, such as religion. One glaring policy implication of this relationship is that before incorporating this outcome into policy, the qualitative research conducted in Pakistan not only has to be expanded and deepened, but should also be compared with similar research in other communities. These other communities can

include Muslim majority countries as well as countries or societies with a significant Muslim population. For instance, Britain has a large Muslim population and establishing Islamic schools is a popular policy issue especially because it has been shown that students from faith-based perform better in standardized testing (Ameli, Azam, & Merali, 2005). In addition, Islamic schools often see themselves as a "moral compass" for the rest of society (Ameli, Azam, & Merali, 2005). This does not mean that they necessarily consider themselves to be superior to the rest of society; rather, they attempt to serve a purpose that the school directors think is necessary in order to achieve the social objectives that education aims for (personal communication, December 11th, 2011). In other words, the second educational outcomes in this dissertation can be ethics (including character building) and civic identity, which is possibly related to social cohesion (one of the four goals of PPPs). This is because ethics and character building can make social co-existence easier and also strengthen the religious identity of students. Interviews in the qualitative analysis support this hypothesis. Many parents were dissatisfied with the type of education their children were receiving because they felt the opportunity cost of educational quality (shown by their children's academic performance) was too high in terms of the foregone ethical education (in secular schools) their children could have learnt through their religion. According to qualitative data, the ideal combination in education provision – efficiency for quality and religion for social cohesion – is lacking. This can have policy implications in terms of the kinds of schools that the FAS program funds by not only having facilities and achievement as criteria, but also school aims as a basis for deciding whether or not to enter into a partnership with a specific private school.

The analysis in this dissertation has used a comparative and exploratory approach towards comparing school types, which means that it has examined relationships rather than impacts. However, in order to affect policy change or even maintain the policy status quo for greater educational quality, it will be more useful to estimate "effects" rather than "associations" of public, private, and PPP schools, such as the FAS program, on education outcomes including student achievement and ethics/civic identity. This implies using causal inference strategies for further research and data collection. Moreover, additional research also needs to be conducted to gather grass-root opinions that are representative of the population and hence can allow the government to cater towards their opinions. Future research is discussed in more detail in the next section.

7.3 - Future Research

As far as future research is concerned, randomized controlled experiments (RCTs) of programs, such as the FAS program, are a possibility since RCTs are considered to be the gold standard in evaluation methods (Duflo & Kremer, 2003). This evaluation of government education programs often occurs towards the middle or end of an intervention to gauge its influence on development (which can have various indicators, such as student test scores), and to determine if the status quo should be maintained or changed. Deaton (2009), and Duflo and Kremer (2003) evaluate evaluation methods themselves. For instance, Dulfo and Kremer (2003) suggest more proper and accurate evaluation techniques (i.e. RCTs) for the World Bank's operations evaluation department (and eventually more aid organizations).[171] In other words,

[171] They also suggest setting up a separate randomized evaluation unit that undertakes evaluations on behalf of various local and/or international organizations.

adopting the practitioner role recommends finding the mean of the treatment effect in randomized evaluation methods/RCTs.

However, from a theoretical/academic perspective, it is apparent that RCTs do not indicate what the other features of the distribution are. It is important to use the practical and conceptual problems associated with randomized controlled trials (RCTs) to argue that rather than solely evaluating development and education projects (e.g. FAS), there should be a trend towards evaluating the "theory" or framework behind these projects (Deaton, 2009). Econometric methods are often used even when their assumptions do not apply to the case at hand. Deaton (2009) suggests that rather than focusing on the particular method and project, it is more important to look at the "why" versus the "if" of why certain policy interventions succeed or fail and the theoretical mechanisms behind them. Regarding research in this dissertation, I attempt to analyze the mechanism or "why" behind higher test scores of PPP schools after seeing "if" the PPP schools (FAS program) achieve higher scores than public or private schools. However, more research through causal inference strategies is required for both "why" and "if" before Deaton's premise of "technique is never a substitute for the business of doing economics" can be met (Deaton, 2009, p. 47).

This implies that unlike the mean treatment effect that Duflo and Kremer (2003) support, the median treatment effect could also be useful to policy makers in international agencies as could information on how different subgroups of the sample are affected by the treatment (Deaton, 2009). However, the difference in treatment effects is not clear through RCTs. This is especially important when designing national or international development policies because a sample does not have a uniform reaction to a treatment. For instance, not all students will benefit

from subsidized school costs or even if they all benefit, if one student benefiting more than others drives up the mean treatment effect, it is not sufficient to implement a subsidized school cost policy on a large scale. Regarding this dissertation, the treatment "effect" is not necessarily uniform for boys and girls or for each tehsil so that a province or nation-wide RCT using the FAS program model might not be very useful in providing results that inform policy.

This and other problems with RCTs – externality versus exogeneity, proper implemention etc. – can lead us to question the preference they receive as tools for causal inference (Deaton, 2009). Moreover, there can be financial and ethical issues with conducting RCTs that incorporate both the public and private sector, especially if they are implemented on a large scale and then possibly become the precondition for international agencies providing funding for development projects. It is important to note that ethical and financial issues will vary from field to field; they might be more expensive to conduct in the education sector than in the health sector and vice versa. In addition, there are many stakeholders and social interactions involved (Manski, 2000) in PPPs (e.g. the provincial and district governments, schools, students etc. in the FAS program) so that actual policy is not implemented as it is in the RCT, which presents highly controlled and unrealistically ideal conditions for testing the effect of a treatment (Deaton, 2009). Therefore, there is no better or worse research method as long as the causal inference question under consideration (and not the supposed reliability and validity of the method itself) is the primary reason for choosing a certain research method (Deaton, 2009). This has to be kept in mind for future studies on PPPs because according to Manski (2000), even "subjective" data gathered through qualitative methods can be useful given the context, especially if there are unobservable characteristics that can influence the results (e.g. the PPP contract).

Another possible research area, especially from a policy perspective, is to compare results from different provinces in Pakistan and other countries in order to increase external validity of results from any one study. Many developing countries besides Pakistan also have compulsory schooling requirements (although these are often until primary education levels) so that in order to increase external validity, the same relationship can be studied in another context, including other Pakistani provinces, to see if it has similar or different results than the FAS program in Punjab, Pakistan. More school, individual, and family background variables can be included (which are so far unavailable in Pakistan) in a form that makes research possible. This calls for large-scale, research and policy oriented data collection by government ministries in Pakistan. It also calls for alternative measures of student achievement than just standardized test scores, which can involve separate research advisory commissions consisting of both domestic and international academics and policy makers.

For only PPP schools, it can be interesting to determine the potential causal effect of the FAS program on student achievement at a longitudinal scale. One study that seeks to answer a similar question is conducted by Barrerra-Osorio and Raju (2011). Their outcome variables are student learning, school size, and schooling inputs. It is possible to only look at student learning/achievement as an outcome variable not only because the other two – school size and inputs – can be considered as inputs in the schooling production function (Hanushek, 1996), but also because examining PPPs focuses on institutions and their relationship with educational outcomes. Since now there is more recent data available from PEF concerning the Quality Assessment Tests as well as more student-based information (PEF, 2012), a main advantage of conducting a similar analysis as Barrera-Osorio and Raju (2011) is to get more updated results.

This analysis can potentially incorporate a regression discontinuity design (RDD) relating the outcome variable – average student learning – with the main explanatory variable – whether or not a school participates (or is qualified to participate) in the FAS program.[172] I describe this particular future research possibility in more detail because it deals specifically with the FAS program that was the focus of this dissertation.

The main premise for an RDD study on only FAS program schools is that the assignment of a school to the FAS program is not random since the assignment depends on, for instance, past school quality and student learning ability. This prevents using the difference in test scores as the causal effect (average treatment effect or ATT) of participation in the FAS program[173]. However, the selection bias problem can be mitigated by the FAS program policy of schools being eligible for student subsidies only if they attain a 67% passing score (cut-off point) on the Quality Assessment Tests (QATs)[174] held twice a year in each FAS program school.[175]

This decision rule of participation eligibility can be used in a sharp regression discontinuity design (RDD) identification strategy. This is true especially if schools close to the cut-off score are used so that the selection bias is eliminated or at least minimized. Under RDD assumptions, the difference between the marginal passers in the QATs and marginal failers in the QAT shows the ATT at the 67% cut-off. Therefore, the ATT will simply be the difference in scores of non- participant and participant schools below and above the cut-off respectively. Since

[172] Barrera-Osorio and Raju (2011) follow van der Klaauw (2007) in this regard.

[173] This is why I claim that this dissertation is an exploratory study and not a causal inference strategy.

[174] Manipulation of QAT scores can or cannot be taken into account although in reality there can be both partial and complete manipulation by the PEF staff, the budget etc. (Barrera-Osorio & Raju, 2011).

[175] However, some schools also cease to participate in the FAS program if their enrollment exceeds 500 students so it is important to differentiate between the two reasons.

there have been 6 complete phases of the QATs (the 7th one is in process), the most recent phase shows a sharp RDD rather than the previous phases where schools have had the opportunity to re-apply and re-participate in the FAS program. Previous phases will fit more closely into a fuzzy RDD (Barrera-Osorio & Raju, 2011).

However, the RDD research used in calculating the effect of the FAS program on average student achievement can have similar internal validity problems as those described in chapter 4 of this dissertation's quantitative analysis. One problem can be the spillover effects from program schools to non-program schools that are mostly in the same locality and perhaps even compete for the same market (consumers – parents and students). A second internal validity problem can occur due to school "anticipation" that could alter their behavior and resources in order to participate in the FAS program at a future date since there have been multiple calls for applications. It can also be argued that using RDD as an identification strategy reduces external validity because it only looks at observations close to the cut-off. Yet, it is still a useful analysis if the school observable characteristics are similar as shown by the propensity scores. It is also possible to conduct an instrumental variable RDD analysis after identifying instruments that determine why past FAS schools participate or do not participate in the subsequent phases. Additional analysis for the entire education distribution – ignoring the cut-off score – should also be conducted so that the different types of analyses can serve as a "double-check" (Card & Krueger, 1992). Therefore, both a local/neighborhood and full sample RDD analysis should be conducted.

Other possible future research questions could be those that combine quantitative and qualitative analyses. For instance, ex-ante and ex-post perceptions of parents about how their

child is doing in school – academically, socially, physically, etc. - and whether or not they feel their school choice was the correct one. If it was the correct choice, which aspect was most significant and how can it be measured empirically so that it can be studied at a larger scale? If parents feel their school choice for their child(ren) was an incorrect one, which aspect(s) make it the incorrect choice and how can its influence be determined on a larger scale and in various contexts? Answering such questions can further inform policy about which types of schools the government should fund and promote, and also about which aspects (geographical, gender, curriculum etc.) the government should focus on in order to increase educational quality.

Moreover, although Hirschman's (1970) model of maintaining educational quality by examining decisions to change, leave, or accept a school's quality is from an economic standpoint, it can still inform qualitative questions about information availability to parents. For instance, how much information about a school's function and curriculum is available to parents? How can this information be used to make an informed decision about increasing their private (and perhaps social) utility through targeting the relevant educational outcome in the education production function? These questions can be answered through qualitative methods, such as interviews of both parents and school personnel.

In forming and answering questions that are either purely qualitative or that combine quantitative and qualitative methods, the sample size can be expanded to other districts in Punjab and ultimately even in Pakistan so that it is more representative of the population. Other groups that are not interviewed in this dissertation, such as students or policy makers, can also be interviewed to get multiple viewpoints that can help in putting qualitative data and analysis into perspective. If students are taken into the sample, it will be easier and more useful to conduct

detailed observations in schools and classrooms so that the triangulation approach can be used in more depth. Moreover, the sample selection methods can be more advanced, perhaps with the help of the Population Census Bureau and more updated data can be used through the new Census that is underway. Software for qualitative analysis, such as NVIVO, can be used to code the data instead of manual coding because the sample size will be larger and the information will be wider and deeper in scale.

This dissertation forms a springboard for answering these future research questions because as mentioned in the first chapter, it provides the first comparative exploration of school types in Pakistan, especially through including PPP schools. The next section concludes the dissertation.

7.4 - Conclusion

Through an exploratory analysis to add to understanding about the topic in Pakistan's context, this dissertation aimed to answer two research questions – how do public, private, and public-private partnership schools relate to student achievement?; and how does Islam relate to parental decision making about school choice for their child(ren)? Answering these two questions entailed using two methodologies – quantitative methods for the first research question, and qualitative methods for the second research question. While not inferring causality, findings for the first research question showed that private schools are related to slightly higher scores while FAS program schools are related to considerably higher test scores than public schools. This implies that rather than being just a private school, being a FAS program private school is more strongly related to student achievement and perhaps higher educational quality as

well. Since FAS program schools are examples of PPPs, it is possible that the PPP contract, finance and management rules in the partnership contract, and accountability are some of these unobservable characteristics that make FAS program schools stand out from other private schools. Findings for the second research question emphasized the second educational outcome to show that although parents have chosen schools based on their priorities, backgrounds, aims, and socio-economic status preferences, these schools do not impart the ideal education parents would like for their children. In turn, the ideal type of education would be a combination of high quality "secular" or contemporary education and an education that fosters character building, civic values, religiosity, and ethics. This can have implications for the types of schools that the government establishes or private schools that it partners with.

More research including a longitudinal examination of the FAS program and other PEF programs is necessary before causality can be inferred between PPPs and any educational outcome. This implies that parental preferences can be significant in investigating the reason(s) for dropping out of school, and PPPs can be significant in countering the dropout issue. Moreover, if religion, ethics, and civic identity are important aspects of the type of education parents prefer for their children, the government can consciously consider these educational outcomes when it establishes PPPs because it can influence its type of school partners.[176] Keeping in mind all these findings as well as government aims of education (such as efficiency, equity, school choice, and social cohesion), it is possible to bring forth a policy framework and future research areas that can take into account various school types, components of PPP, and grass-root educational preferences in order to attain higher social utility through education.

[176] Many of the current FAS program schools are already those with a social objective that they attempt to achieve through government funding although this is coincidental and not a deliberate selection by PEF.

References

Ahmad, A. (2002). Ibn Khaldun's Understanding of civilizations and the dilemmas of Islam and the West today. *Middle East Journal, 56(*1), 20-45

Ahmad, M. (2009). Madrasa reforms and perspective: Islamic tertiary education in Pakistan. In NBE Project Report, *Islamic Education in Bangladesh and Pakistan, Trends in Tertiary Education*. National Bureau of Asian Research.

Ahmed, S. (). High Drop-out in Pakistan: Reasons and Suggestion. Karachi, Pakistan: Hamdard University.

Alderman, H., Behrman, J., Khan, S., Ross, D., & Sabot, R. (1995). Public Schooling Expenditures in Rural Pakistan: Efficiently Targeting Girls and a Lagging Region. In Kimberly Mead and Dominique van de Walle (Eds.) *Public Spending and the Poor: Theory and Evidence* Johns Hopkins University Press for the World Bank.

Alderman, H., Behrman, J., Khan, S., Ross, D., & Sabot, R. (1996). Decomposing the Regional Gap in Cognitive Skills in Rural Pakistan. *Journal of Asian Economics 7* (1):49-76.

Alderman, H., Orazem, P.F., & Paterno, E.M. (2001). School Quality, School Cost, and the Public/Private School Choices of Low-Income Households in Pakistan. *Journal of Human Resources, 36*, 304–26.

Allcott, H. & Ortega, D. E. (2009). The performance of decentralized school systems: Evidence from Fe Y Alegria in Republica Bolivariana de Venezuela. In F. Barrera-Osorio, H.A. Patrinos, & Q. Wodon (Eds.) *Emerging Evidence on vouchers and faith based providers in Education: Case studies from Africa, Latin America, and Asia*. Washington D.C.: The World Bank.

Allison, P. D. (2002). *Missing Data*. Thousand Oaks, CA: Sage Publications.

Alves, M. J., & Willie, C. V. (1987). Controlled choice assignment: A new and more effective approach to school desegregation. *Urban Review, 19*(2), 67-87.

Ameli, S., Azam, A. & Merali, A. (2005). *British Muslims' expectation of the government: Secular or Islamic? What schools do British Muslims want for their children?* Wembley, United Kingdom: Islamic Human Rights Commission

American Institute of Pakistan Studies. (2011). http://www.pakistanstudies aips.org/pakistan/geography/index.html. accessed 03/10/2011. Madison, WI: University of Wisconsin

Anand, P., Mizala, A., & Repetto, A.(2006). Using School Scholarships to Estimate the Effect of Government Subsidized Private Education on Academic Achievement in Chile. Working Paper 220. Santiago: University of Chile.

Andersen, S.C. (2005). *Selection and competition effects in a large scale voucher system*. Aarhus, Denmark: Department of Political Science, Aarhus Universty.

Andrabi, T., Das, J., Khwaja, A., & Zajonc, T. (2006). Religious school enrollment in Pakistan: A look at the data. *Comparative Education Review, 50*, 446–477.

Andrabi, T., Das, J., & Khwaja, A.I. (2006). *A Dime a Day: The Possibilities and Limits of Private Schooling in Pakistan.* Washington, D.C.: The World Bank

Andrabi, T., Das, J., Khwaja, A.I., Vishwanath, T., & Zajonc, T. (2007). *Learning and Educational Achievements in Punjab Schools (Leaps): Insights to Inform the Education Policy Debate.* Washington D.C.: The World Bank

Andrabi, T., Das, J., Khwaja, A., & Zajonc, T. (2009). *Do value-added estimates add value? Accounting for learning dynamics.* Washington, D.C.: The World Bank

Angrist, J. D., Imbens, G.W, & Rubin, D. (1996): Identification of Causal Effects Using Instrumental Variables. *Journal of the American Statistical Association, 91,* 444-472.

Angrist, J., & Krueger. A. (1991). Does Compulsory School Attendance Affect Schooling and Earnings? *Quarterly Journal of Economics, 106* (4): 979–1014.

Angrist, J., Bettinger, E., Bloom, E., King, E. & Kremer, M. (2002). Vouchers for Private Schooling in Colombia: Evidence from a Randomized Natural Experiment. *American Economic Review 92*(5): 1535–58.

Anzar, U. (2003). *Islamic Education: A brief history of madrassas with comments on curricula and current pedagogical practices.*

Archer, M. S. (1984). *Social origins of educational systems*. London: Sage.

Arum, R. (1996). Do private schools force public schools to compete? *American Sociological Review, 61,* 29-46.

Asadullah, M.N., Chaudhury, N., & Dar, A. (2009). Assessing the performance of madrassas in rural Bangladesh. In F. Barrera-Osorio, H.A. Patrinos, & Q. Wodon (Eds.) *Emerging Evidence on vouchers and faith based providers in Education: Case studies from Africa, Latin America, and Asia*. Washington, D.C.: The World Bank.

Asadullah, M.N., Chaudhury, N., & Dar, A. (2006). *School choice and cognitive achievement in*

rural Bangladesh. Washington, D.C.: The World Bank.

Ashenfelter, O. (1978). Estimating the effect of training programs on earnings. *Review of Economics and Statistics, 60*, 47-57

Ashenfelter, O. & Card, D. (1985). Using the longitudinal structure of earnings to estimate the effect of training programs. *Review of Economics of Statistics, 67,* 648-660.

Backiny-Yetna, P. & Wodon. Q. (2009a). Comparing Faith-Based and Government Schools in the Democratic Republic of Congo. In F. Barrera-Osorio, H. A. Patrinos, and Q. Wodon (Eds.), *Emerging Evidence on Private Participation in Education: Vouchers and Faith-Based Providers,*. Washington, DC: World Bank.

Backiny-Yetna, P., & Wodon. Q. (2009b). Comparing the Cost of Public, Religious, and Private Schooling in Cameroon. In F. Barrera-Osorio, H. A. Patrinos, and Q. Wodon (Eds.), *Emerging Evidence on Private Participation in Education: Vouchers and Faith-Based Providers,*. Washington, DC: World Bank.

Baker, D., & LeTendre, G. (2005). *National differences, global similarities.* Palo Alto, CA: Stanford University Press.

Banerjee, A., Banerjee, R., Duflo, E., Glennerster, R., Kenniston, D., Stehmani, S. & Shotland, M. (2007). Can information campaigns raise awareness and local participation in primary education? *Economic and Political Weekly*, 1365-1372

Barrera-Osorio, F. & Raju, D. (2011). Evaluating public per-student subsidies to low-cost private schools: Regression-discontinuity evidence from Pakistan. *Policy Research Working Paper*. Washington, D.C.: The World Bank.

Barro, R.J. & McLeary, R.M. (2003). Religion and economic growth across countries. *American Sociological Review, 68*(5), 760-781

Baum, L.E. & Katz, M. (1965). Convergence rates in the law of large numbers. *Transactions of the American Mathematical Society, 120* (1), 108-123

Becker, G, S. (1992). *Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education.*. Chicago, University of Chicago Press

Beegle, C., & Newhouse, D. (2005). The Effect of School Type on Academic Achievement: Evidence from Indonesia. *Policy Research Working Papers. World Bank, Washington, DC.*

Behrman, J., Khan, S., Ross,D., & Sabot, R. (1997). School Quality and Cognitive Achievement

Production: A Case Study for Rural Pakistan. *Economics of Education Review,16*(2):127-142.

Belfield, C. (2007). *The cost of early school leaving and school failure*. Washington, D.C.: The World Bank

Beller, A. & Chung, S.C. (1992). Family Structure and Educational Attainment of Children: effects of remarriage. *Journal of Population Economics* (5):39-59

Bergen, P., & Pandey, S. (2006). The madrassa myth. *The Washington Quarterly*, *29*.

Berman, E. (2000). Sect, subsidy, and sacrifice: an economist's view of ultra-orthodox Jews, *Quarterly Journal of Economics, 115* (3), 905-953.

Berman, E. & Stepanyan, A. (2004). *How many radical Islamists? Indirect evidence from five countries*. National Bureau of Economic Research.

Besley, T. and Ghatak,M. (2001). Government Versus Private Ownership of Public Goods. *Quarterly Journal of Economics, 116,* 4, 1343–72, 2001

Biggs, J.B. & Collis, K.F. (1982). *Evaluating the quality of learning: The SOLO taxonomy (structure of the observed learning outcome).* New York: Academic Press

Birdsall, N. (1982). Child Schooling and the Measurement of Living Standards. *Th e World Bank, LSMS Working Paper no. 14*

Blackmore, J. (1995). Breaking out from a masculinist politics of education. In B. Limerick & B. Lingard (Eds) *Gender and Changzng Educatzon Management*, pp. 44-56. Rydalmere, NSW, Hodder Education).

Bloom, B., Engelhart, M.D., Furst, E.J., Hill, W.H., & Krathwohl D.R. (1956). *Taxonomy of Educational Objectives: the Classification of Educational Goals.* New York: Longmans, Green.

Blundell, R. & Costa Dias, M. (2008). *Alternative Approaches to Evaluation in Empirical* Microeconomics, Discussion Paper Series, IZA DP No. 3800, Bonn.

Boardman, A.E., Greenberg, D. H., Vining, A.R., & Weimer, D. L. (2006). *Cost-Benefit Analysis: Concepts and Practice*. Upper Saddle River, NJ: Prentice Hall

Boardman, A.E., Hodge, G.A., & Greve, C. (2011). *International Handbook on Public-Private Partnerships*. Edward Elgar Publishing.

Boli, J., Ramirez, F., & Meyer, J. (1985). Explaining the origins and expansion of mass

education. *Comparative Education Review, 29* (2), 145-170

Boli, J., & Thomas, G. M. (1999). INGOs and the organization of world culture. In John Boli & George M. Thomas (Eds.), *Constructing world culture. International nongovernmental organizations since 1875* (pp. 13-49). Stanford, CA: Stanford University Press.

Bray, M. (1984). *Educational Planning in a Decentralized System: The Papua New Guinean Experience*. Sidney: Sidney University Press.

Bridge, R. G. (1978). Information Imperfections: The Achilles Heel of Entitlement Plans. *School Review, 86*, pp. 504-529.

Buckley, J. & Schneider, M. (2002). What do parents want from schools? Evidence from the internet. *Educational Evaluation and Policy Analysis, 24*(2), 133-144

Burki, S. J. (2001). Basic education in Pakistan and Afghanistan: the Current Crisis and Beyond. Conference. Washington, D.C. The Brookings Institution.

Burki, S. J. (2005). Educating the Pakistani Masses. In Robert Hathaway (Ed.), Education Reform in Pakistan.

Butler, J. (1997). *The Psychic Life: Theories in Subjection*. Stanford, CA: Stanford University Press

Caldwell, B. & Keating, J. (2004). Adding value to public education: An Examination of the possibilities for Public-private partnerships. RMIT University. Bundoora: Australian Council of Deans of Education

Card, D. & Krueger, A. (1992). Does school quality matter? Returns to education and the characteristics of public schools in the United States. *The Journal of Political Economy, 100*(1), 1-40.

Carlisle, T. (1998). Electricity deregulation lengthens Alberta nights. *The Wall Street Journal*, A18.

Carnegie Foundation for the Advancement of Teaching. (1992). *School Choice*. Princeton.: Carnegie Foundation.

Carnoy, M. (2000). Globalization and educational reform. In N. Stromquist, Nelly & K. Monkman (Eds.), *Globalization and education: Integration and contestation across cultures.* Lanham, MD: Rowman & Littlefield Publishers.

Carnoy, M., & McEwan, P.J. (2001). Privatization through Vouchers in Developing Countries:

The Cases of Chile and Colombia. In H.M. Levin (Ed.) *Privatizing Education: Can the Marketplace Deliver Choice, Efficiency, Equity and Social Cohesion?* (151–177). United States: Westview Press.

Carnoy, M., & Levin, H.M. (1985). Education and theories of the state. In M. Carnoy & H.M. Levin (Eds.), *Schooling and work in the democratic state* (pp. 26-51). Stanford: Stanford University Press

Carnoy, M. & Marshall, J. (2005). Cuba's academic performance in comparative perspective. *Comparative Education Review, 49*(2),230-61

Carnoy, M. (2006). Educational Effort to How Should Education Monies be Spent. *Module 5 of The Economics of Education,* Sections 1-5. Stanford, CA: Stanford University.

Carnoy, M., Gove. G. & Marshall, J. (2007). Cuba's Academic Advantage. Stanford, CA: Stanford University Press.

Carroll, T., F (2001). *Social capital, local capacity building and poverty reduction* Manila: Office of environment and social development , Asian Development Bank

Cattell, R. (1950). The principal cultural patterns discoverable in the syntax dimension of existing nations. *Journal of Social Psychology, 32,* 215-253

CIA. (2012). *World Factbook.*

Chakrabarti, R., & Peterson, P.E. (2008). *School Choice International: Exploring Public-Private Partnerships*. Cambridge, MA: MIT Press.

Chakrabarti, R. & Roy, J. (2010). Do charter schools crowd out private school enrollment? Evidence from Michigan. *Staff report 472,* Federal Reserve Bank of New York.

Chen, K. (2004). Fiscal centralization and the form of corruption in China. *European Journal of Political Economy, 20*(4), 1001-1009

Chow, G. C. (1960). Tests of Equality Between Sets of Coefficients in Two Linear Regressions. *Econometrica*, 28 (3), 591–605

Christensen, J. G. (2002): Responsive, Efficient, and Fair: Competing Models for the Provision of Welfare Services. *Paper prepared for ECPR Joint Sessions of Workshops, March 2002, Turin, Institut for Statskundskab, Aarhus Universitet.*

Chubb, J. E., & Moe, T. M. (1990). *Politics, markets and America's schools*. Washington DC: Brookings Institution.

Cohn, E. & and Geske, T.G. (2004), *The Economics of Education*, 3rd edn, Cincinnati:South Western.

Coleman, J.S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94*, S95-S120.

Coombs, P. & Hallack, J. (1987). *Cost analysis in education: A tool for policy making*. Baltimore, MD: Johns Hopkins University Press.

Crocker, K.J., & Masten, S.E. (1996). Regulation and administration contracts revisited: Lessons from transaction-cost economics for public utility regulation. *Journal of Regulatory Economics, 9*(1), 5-39

Cullen, J., Jacob, B. A. & Levitt, S.D. (2005). The impact of school choice on student outcomes: an analysis of the Chicago Public Schools. *Journal of Public Economics 89*(5-6):729-60

De Bettignies, J. & Ross, T. (2004). The economics of public-private partnerships. *Canadian Public Policy*, 30(2), 135-154

de Lemos, T., Betts, M., Eaton, D., & Tadeu de Almeida, L. (2001). Model for management of whole life cycle risk uncertainty in the private finance initiative (PFI). *The Journal of Project Finance, Winter*

Deaton, A. (2009). *Instruments of Development: Randomization in the Tropics, and the Search for the Elusive Keys to Economics Development*, Working Paper 14690. Cambridge, MA: NBER

Dehejia, R. H. & Wahba, S. (2002). Propensity Score Matching Methods for Non-Experimental Causal Studies *The Review of Economics & Statistics, 84* (1), 151-161.

Drake, C. (1993). Effects of Misspecification of the Propensity Score on Estimators of Treatment Effect, *Biometrics*, *49*(4), 1231-1236.

Dreze, J., & Kingdon, G, G. (2001). School participation in rural India. *Review of Developmental Economics, 5*(1), 1-24.

Dronkers, J. & Robert, P. (2008). Differences in scholastic achievement of public, private government-dependent, and private independent schools: A cross-national analysis. *Educational Policy, 22*: 541-577.

Dronkers, J. (2004). Do public and religious schools really differ? Assessing the European evidence. P.J. Wolf (Ed.), *Educating Citizens: International Perspectives on Civic Values and School Choice*, Washington DC: Brookings Institute, pp. 287-314

Duflo, E. (2001). Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence from an Unusual Policy Experiment. *American Economic Review, 91* (4): 795–813.

Duflo, E. & Kremer, M. (2003). *Use of Randomization in the Evaluation of Development Effectiveness,* Paper prepared for the World Bank Operations Evaluation Department (OED) Conference on Evaluation and Development Effectiveness. Washington, D.C.

Dynarski, M. & Gleason, P. (1998). *How can we help? What we have learned from federal dropout-prevention programs.* Princeton, N.J.: Mathematica Policy Research, Inc.

Edwards, R., Franklin, J., & Holland, J (2003). *Families and social capital: Exploring the issues.* London Families and Social capital ESRC research group. South Bank University.

Eickelman, D. F. (2007). Madrasas in Morocco: Their Vanishing Public Role. In R. W. Hefner and M. Q. Zaman (Eds.), *Schooling Islam: The Culture and Politics of Modern Muslim Education*, edited by. Princeton, NJ: Princeton University Press.

Eide, E. R., Goldhaber, D.D & Showalter, M. (2004), Does Catholic High School Attendance Lead to Attendance at a More Selective College? *Social Science Quarterly*, *85*(5), 1335-1352.

Eldridge. D. (2001) *Footprints to the Future*. Report from the Prime Minister's Youth Pathways Action Plan Taskforce. Canberra : Department. of Education, Training and Youth Affairs

Epstein, J. L., Coates, L., Salinas, K. C, Sanders, M. G., Simon, B. S. (1997). *School, family and community partnerships*. Thousand Oaks, CA: Corwin Press.

Evans, W., & Schwab. R. (1995). Finishing High School and Starting College: Do Catholic Schools Make a Difference? *Quarterly Journal of Economics* 110 (4): 941–74

Fagerlind, Ingemar, & Saha, Lawrence J. (1989). Education, political mobilization, and development. In *Education and national development: A comparative perspective* (pp. 123-142). Oxford: Pergamon Press.

Falkingham J. & Namazie C. (2002). *Measuring health and poverty: a review of approaches to identifying the poor*. London: Department for International Development Health Systems Resource Centre (DFID HSRC)

Farlam, P. (2005). *Working Together: Assessing Public-Private Partnerships in Africa*. The South African Institute of International Affairs.

Federal Bureau of Statistics. (2002). *Pakistan Integrated Household Survey 2001-02*. Islamabad: Federal Bureau of Statistics, Government of Pakistan.

Feldstein, M. (1998). Income inequality and Poverty. *NBER Working paper no. 6770*. Cambridge, Massachusetts: National Bureau of Economic Research.

Fennerman, E., Peterson, P.L., Carpenter, T.P., & Lubinski, C.A. (1990). Teachers' attributions and beliefs about girls, boys, and mathematics. *Educational Studies in Mathematics, 21*(1), 55-69

Ferguson, K., M. (2004). Measuring and indigenizing social capital in relation to children's street work in Mexico: The role of culture in shaping social capital indicators *Journal of Sociology and Social Welfare XXXI*(4).

Ferris, J., and West, E. (2000) "Education Vouchers, Dropouts, and the Peer Group Problem." Working Paper. Department of Economics, Carleton University, Ottawa (www.carleton.ca/economics/cep/cep00-05.pdf).

Figlio, D. N. & Ludwig, J. (1999) Sex, Drugs, and Catholic Schools: Private Schooling and Non-Market Adolescent Behaviors. Working Paper 7900, Cambridge, MA: National Bureau of Economic Research

Figlio, D. N. & Stone, J. (2000). Are Private Schools Really Better? *Research in Labor Economics, 18*, 115–40.

Filmer, D. & Pritchett, L.H. (2001). Estimating wealth effects without expenditure data – or tears: an application to educational enrollments in states of India. *Demography, 38:*115-32.

Finn, J.D. (1989). Withdrawing from school. *Review of Educational Research, 59*,117-142.

Finn, C. E. Jr., Manno, B. V., Bierlein, L., & Vanourek, G. (1997). *Charter schools in action: Final report*. Washington, DC: Hudson Institute.

Fisher, William F. (1997). Doing good? The politics and anti politics of NGO practices. *Annual Review of Anthropology, 26*, 439-464.

Flew, A. (1995). *All the Right Places*. Adam Smith Institute; London

Fossey R. (1994). Open Enrollment in Massachusetts: Why Families Choose. *Education Evaluation and Policy Analysis, 16* (3). pp. 320-334.

Fowler, F. C. (1996). Participation in Ohio's interdistrict open enrollment option: Exploring the supply-side of choice. *Educational Policy*, *10*(4), 518-536.

Friedman, M. (1962). The role of government in education. In *Capitalism and Freedom*. (pp.85-107). Chicago: University of Chicago Press.

Freire, Paulo (1994). *Pedagogy of the oppressed.* New York: Continuum

Fukuyama, F. (2002). Social capital and development: The coming agenda. *SAIS Review XXII*(1)

Fuller, B.,& Elmore, R. F. (1996). Empirical research on educational choice: What are the implications for policymakers? In B. Fuller, R. F. Elmore,&G. Orfield (Eds.), *Who chooses? Who loses? Culture, institutions and the unequal effects of school choice* (pp. 187-201). New York: Teachers College Press.

Furnham, A., Kirkcaldy, B., & Lynn, R. (1994). National attitudes to competitiveness, money, and work amongst young people: first, second and third world differences . *Human Relations, 47*, 119-132.

Galetovic, A., Engel, E. & Fischer R. (2009). *Public-private partnerships: when and how*. Stanford, CA: Stanford Center for International Development.

Gauri, V. & Vawda, A.(2004). Vouchers for Basic Education in Developing Economies: A Principal Agent Perspective. *World Bank Research Observer 19*(2): 259–280.

Gill, B., Hamilton, L.S., Lockwood, J.R., Marsh, J.A., Zimmer, R., Hill, D. & Pribesh,S. (2005). *Inspiration, Perspiration, and Time: Operations and Achievement in Edison Schools*. Santa Monica, CA: RAND Corporation.

Glewwe, P. & Jacoby, H. (1994). Student Achievement and Schooling Choice in Low-Income Countries: Evidence from Ghana. *Journal of Human Resources, 29* (3), 843–64.

Glewwe, P., Grosh, M., Jacoby, H. & Lockheed, M. (1995). An Eclectic Approach to Estimating the Determinants of Achievement in Jamaican Primary Education." *World Bank Economic Review, 9(2),* 231–58.

Goodwin, J. (2006). What do we really know about (suicide) terrorism? *Sociological Forum, 21*, 315–330.

Gordon, L. (1994) Rich and poor schools in Aotearoa/New Zealand. *New Zealand Journal of Educational Studies, 29*, pp. 113-125

Gordon, L. & Whitty, G. (1997). Given the "Hidden hand" a helping hand? The rhetoric and reality of neoliberal education reform in England and New Zealand. *Comparative Education, 33*(3), 453-467

Government of Pakistan. (1982). *Sixth Five Year Plan*. Islamabad, Pakistan: Government of Pakistan.

Government of Pakistan. (2006). *Pakistan's Education Statistics, 2005-06*. Islamabad: Academy for Education Planning and Management, Ministry of Education, Government of Pakistan.

Government of Pakistan. (2011). Ministry of Education (MOE). http://www.moe.gov.pk/

Government of the Punjab. (2011). *Schools Education Department*. Ministry of Education, Govenrment of the Punjab.

Green, A. (1990) *Education and State Formation.* London: Macmillan.

Greene, J. P., Peterson, P. E., Du, J., Boeger, L., & Frazier, C. L. (1996). *The effectiveness of school choice in Milwaukee: A secondary analysis of data from the program's evaluation*. Occasional Paper 96-3. Cambridge, MA: Harvard University, Program in Educational Policy and Governance.

Greene, J. P., Peterson, P. E., & Du, J. (1997). *Effectiveness of school choice: The Milwaukee experiment*. Occasional Paper 97-1. Cambridge, MA: Harvard University, Program in Educational Policy and Governance.

Grimsey, D. & Lewis, M. (2004). *The Economics of Public-Private Partnerships*. Northampton, MA: Edward Elgar Publishing

Guiso, L., Sapienza, P. & Zingales, L. (2003). People's Opium? Religion and Economic Attitudes. *Journal of Monetary Economics, 50*(1), 225-82.

Gupta, V., Hanges, P. J., & Dorfman, P. (2002). Cultural clusters: methodology and findings. *Journal of World Business, 37*, 11-15

Guthrie, J. (1997). School Finance: Fifty Years of Expansion. *The Future of Children. Financing Schools. 7*(3): 24-38.

Gutmann, A. (1987). *Democratic education*. Princeton, NJ: Princeton University Press.

Hart, O., Schleifer, A. & Vishny, R. W. (1997). "The proper scope of government: Theory and An application to prisons". *Quarterly Journal of Economics,* 112(4), pp. 1127-1161.

Hanushek, E. A. (1986) The Economics of Schooling: Production and Efficiency in Public Schools. *Journal of Economic Literature, 24,* pp.1141-1177

Hanushek, E. A.(1995). Interpreting recent research on schooling in developing countries. *World*

Bank Research Observer, 10(2), 227-246

Hanushek, E. A., Rivkin, S. G., & Taylor, L. L. (1996). Aggregation and the Estimated Effects of School Resources. *The Review of Economics and Statistics, 78*, 611–27.

Hanushek, E.A. (1999). *The Evidence on Class Size. Eds. Earnings and Learnings in Schools, how Schools Matter.* Washington, D.C.: Brookings Institution.

Hanushek, E.A. (2002). Publicly provided education. *Handbook of Public Economics, 4*, 2045-2141

Haqqani, H. (2002). The gospel of jihad. *Foreign Policy, 132*, 72-74

Heath, S.B. (1983). *Ways with Words: Language, life, and work in communities and classrooms.* Berlin: Cambridge University Press

Heckman, J. (1979). Sample selection bias as a specification error. *Econometrica, 47* (1), 153–161.

Heckman, J., Smith, J. & Clements, N. (1997). Making the Most Out of Social Experiments: Accounting for Heterogeneity in Programme Impacts. *Review of Economic Studies, 64*, 487-535.

Heckman, J.J. & Vytlacil, E. (2001). Policy-relevant treatment effects. *The American Economic Review, 91*(2), 107-111

Hefner, R., & Zaman, M. (Eds.) (2007). *Schooling Islam: The culture and politics of modern Muslim education* Princeton, NJ: Princeton University Press.

Heggoy, A. A. (1984). Colonial education in Algeria: Assimilation and reaction. In Phillip G. Altbach & Gail P. Kelly (Eds.), *Education and the colonial experience* (pp. 97-115). New Brunswick: Transaction.

Helliwell, J., F & Putnam, R, D. (1999). *Education and social capital*. Washington DC: National Bureau of Economic Research.

Henig, J. R. (1994). Rethinking school choice: The limits of the market metaphor. Princeton, NJ: Princeton University Press.

Higher Education Commission. (2010). *Higher Education Medium Term Framework – II*. Islamabad, Pakistan: Government of Pakistan.

Hirschman, A.O. (1970). *Exit, Voice, and Loyalty*. Cambridge, MA: Harvard University Press.

Holmes, J. (2003). Measuring the determinants of school completion in Pakistan: analysis of censoring and selection bias. Economics of Education Review, 22(3), 249-264

Hood, C. (1995) *Explaining Economic Policy Reversals*. Buckingham: Open University Press.

Hoxby, C. (1996) "How Teachers' Unions Affect Education Production." *Quarterly Journal of Economics* 111 (3): 672–718.

Hoxby. C. (2001) "Changing the Profession: How Choice Would Affect Teachers." *Education Next* (Spring): 57–64.

Hoxby, C. (2003). School Choice and School Productivity (or Could School Choice be a Tide that Lifts All Boats? In C. Hoxby (ed) *The Economics of School Choice*, Chicago University Press.

Hoy, A.W. (2000). *Changes in teacher efficacy during the early years of teaching*. New Orleans, LA: American Educational Research Association.

Hsieh, C-T., & M. Urquiola. (2002). *When Schools Compete, How do they Compete? An Assessment of Chile's Nationwide School Voucher Program*. New York, NY: National Center for the Study of Privatization in Education, Occasional Paper No. 43.

Huoweling T., Kunst, A.E., Mackenbach, J.P. (2002). Measuring health inequality among children in developing countries: does the choice of the indicator of economic status matter? *International Journal for Equity in Health, 2:8.*

Iannaccone, L., (1992). Sacrifice and stigma: reducing free-riding in cults, communes, and other collectives, *Journal of Political Economy, 100* (2), 271-91.

Imbens, G.W & Angrist, J.D. (1994): Identification and Estimation of Local Average Treatment Effects. *Econometrica, 62*, 467-476.

Inkeles, A. & Smith, D. H. (1974). The school as a context for modernization. In *Becoming modern* (pp. 133-143). Cambridge, MA: Harvard University Press.

Institute for Policy Studies (2009). Religious education institutions (REIs): Present situation and future Strategy. *Policy Perspectives, 2*(1), 1-12

Jain, P.S. & Dholakia, R.H. (2010). Right to Education Act and Public-Private Partnership. *Economic and Political Weekly, XLV* (10), 78-80

Jamison, D. & Lockheed, M. (1987). Participation in Schooling: Determinants and Learning Outcomes in Nepal. *Economic Development and Cultural Change,35*(2):279-306.

Jencks, C. (1970). *A Voucher System*. Cambridge, MA: Harvard Center for the Center of Public Policy.

Jencks, C. & Mayer, S. E (1990): The social consequences of growing up in a poor neighborhood. In Lynn, L. E. & McGeary, M. G. H (Eds.): *Inner-city poverty in the United States*, Washington, DC: National Academy Press.

Jeynes, W. H. (2002). A meta-analysis of the effects of attending religious schools and religiosity on black and Hispanic academic achievement. *Education and Urban Society, 35*(1), 27-49

Jimerson, L. (1998). *Hidden consequences of school choice: Impact on programs, finances, and accountability*. Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.

Jones, Phillip (2006) Elusive mandate: UNICEF and educational development. *International Journal of Educational Development, 26* (6), 591-604.

Judge, T.A., Bretz, R.D., Boudreau, J.W., & Cable, D.M. (1995). An empirical investigation of the investigators of executive career success. *Personnel Psychology, 48*, 485-519

Katsis, A., Mattson, R. & Psacharopoulos, G. (1998) Explaining educational development in Pakistan: an analysis of the 1991 Household Survey, *Journal of Educational Planning and Administration,13*(1), 17–36.

Kelman, S. (2002). Strategic contracting management. In J.D. Donahue & J.S. Nye (Eds.), *Market-based governance: Supply side, demand side, upside, and downside*. Washington D.C.: Brookings Institute Press.

King, E. & Lillard, L. (1983). Determinants of Schooling Attainment and Enrollment Rates in the Philippines. *Rand Report # N-1962-AID*

King, E. & Lillard, L. (1987). Education Policy and Schooling Attainment in Malaysia and the Philippines. *Economics of Education Review*. *6*(2):167-181.

Knack, S. & Keefer, P. (1995). Institutions and economic performance: Cross-country tests using alternative institutional measures. *Economics and Politics, 7*, 207-227

Knack, S. & Keefer, P. (1997). Does social capital have an economic payoff? A cross-country investigation. *Quarterly Journal of Economics, 112*, 1251-1288.

Knight, J & Shi, L. (1996). Educational Attainment and the Rural-Urban Divide in China. *Oxford Bulletin of Economics and Statistics*, 58(1):83-117.

Kolenikov, S. & Angeles, G. (2009). Socioeconomic status measurement with discrete proxy measures variables: is principal component analysis a reliable answer? *The Review of Income and Wealth, 55*(1), 128-165.

Kottak, C.P. (2000). *Cultural Anthropology*. New York: McGraw Hill.

Krueger, A.B. (2003). Economics considerations and class size. *The Economic Journal, 113*(485): 34-63.

Krueger, A.B. (2007). *What Makes a Terrorist: Economics and the Roots of Terrorism.* Princeton, NJ: Princeton University Press.

Krugman, P. (2009). How did economists get it so wrong? The New York Times. (http://www.csus.edu/indiv/d/dowellm/Econ100A/krugman_macro.pdf accessed 02/19/10)

La Porta, R., Lopez-de-Silanes, F., Schleifer, A., & Vishny, R. (1998). The Quality of Government. Working paper, Harvard University.

Lamdin, D.J. & Mintrom, M. (1997). School choice in theory and practice: Taking stock and looking ahead. *Education Economics, 5(*3), 211-244

Landes, D. (1998). *The Wealth and Poverty of Nations.* New York, NY: W. W. Norton

Lara, B., Mizala, A., & Repetto, A. (2009). *The effectiveness of private school voucher education: evidence form structural school switches*. New York, NY: National Center for the Study of Privatization in Education.

Lauder,H ., Hughes,D ., Waslander, S., Thrupp,M ., McGlinn, J., Newton,S . & Dupuis, A (1994). *The Creation of Market Competition for Education in New Zealand: an empirical analysis of a New Zealand secondary school market 1990-1993*. Wellington, Ministry of Education).

Lazear, E. (1977). Education: Consumption or Production. *Journal of Political Economy, 85*(3):569-97

Learning and Educational Achievement in Punjab Schools. (2008). *The LEAPS Report*. Punjab, Pakistan: LEAPS

Levin, H. (1983). *Cost-effectiveness analysis: A primer*. Beverly Hills, CA: Sage

Levin, H.M. (1987). Accelerated schools for disadvantaged students. *Educational Leadership, 44(*6), 19-21.

Levin, HM. (1991). The economics of educational choice. *Economics of Education Review*, **10**,

137–158.

Levin, H.M. (1999). The public-private nexus in education. *American Behavioral Scientist, 43*(1), 124-137

Levin, H. M., & Driver, C. (1997). Costs of an educational voucher system. *Educational Economics, 5*(3), 265–283.

Levin, H. M. (1998). Educational vouchers: effectiveness, choice, and costs.

Levin, Henry M.(ed). (2001). *Privatizing Education: Can the Marketplace Deliver Choice, Efficiency, Equity, and Social Cohesion?* Westview Press.

Levin, H.M. (2002). A comprehensive framework for evaluating educational vouchers. *Educational Evaluation and Policy Analysis, NCSPE Occasional Paper #5*

Levin, H.M. & Belfield, C.R. (2003). The marketplace in education. *Review of Research in Education, 27,* 183-219

Levin H.M. & Belfield, C.R. (2005). *Privatizing Educational Choice: Consequences for Parents, Schools, and Public Policy.* Herndon, VA: Paradigm Publishers.

Lewis, B. (1998). *The Multiple Identities of the Middle East*. New York: Schocken Books.

Leibowitz, A. (1974). Home Investments in Children. *Journal of Political Economy, 82*:s111-s131.

Lin, N. (1999). Building a network theory of social capital. *Connections, 22*(1), 28-51.

Little Hoover Commission. (1996). *The charter movement: Educational reform school by schoo*l. Sacramento: Milton Marks Commission on California State Government Organization and Economy.

Lochner, L. & Moretti, E. (2004). The Effect of Education on Crime: Evidence from Prison Inmates, Arrests, and Self-Reports. *American Economic Review*, *94*(1), 155-89.

Lockheed, M. & Jimenez, E. (1996). Public and private school overseas: Contrasts in organization and effectiveness. In B. Fuller & R. Elmore (Eds.), *Who chooses? Who loses*? New York, NY: Teachers College Press.

Lockheed, M., Jamison, D. and Lau, L. (1980) Farmer Education and Farm Efficiency: A Survey. In King, T. (Ed.) *Education and Income*. World Bank Staff Working Paper No.402, World Bank: Washington.

Lopez-de-Silanes, F.; Shleifer, A.; and Vishny, R. (1997) "Privatization in the United States." *RAND Journal of Economics* 28 (3): 447–71.

Lubienski, C. & Lubienski, S.T. (2006). *Charter, private, public schools and academic achievement: New evidence from NAEP Maths data.* National Center for the Study of Privatization. Teachers College, Columbia University.

Lubinski, D., & Humphreys, L. G. (1996). Seeing the forest from the trees: When predicting the behavior or status of groups, correlate means. *Psychology, Public Policy, and Law*, 2, 363-376

Malik, A. B (2007). The Freedom of Choice – Affordable Quality Education in Public Private Partnership. Lahore, Pakistan: Maqbool Academy

Malik, A.B. (2009). Public-private partnerships in education: lessons learned from the Punjab Education Foundation. Lahore, Pakistan: Punjab Education Foundation.

Manski, C.F. (2000). Economic analysis of social interaction. *The Journal of Economic Perspectives, 14*(3), 115-136

McEwan, P. (2008). Quantitative Research Methods in Educational Finance and Policy. In H. Ladd and E. Fiske, (Eds.) *Handbook of Research in Education Finance and Policy* pp. 87-104. New York: Routledge.

McEwan, P.J. & M. Carnoy (2000). The Effectiveness and Efficiency of Private Schools in Chile's Voucher System. *Educational Evaluation and Policy Analysis*, 22: 213-39.

McKenzie D.J.(2003). Measure inequality with asset indicators. BREAD Working Paper No. 042; Cambridge, MA: Bureau for Research and Economic Analysis of Development, Center for International Development, Harvard University.

Mead, L.M. (1998). *Statecraft: The politics of welfare reform in Wisconsin*. Paper presented at the meeting of the American Political Science Association. Boston, MA.

Memon, G.R. (2007). Education in Pakistan: the key issues, problems, and the new challenges. *Journal of Management and Social Sciences, 3*(1), 47-55.

Ministry of Education. (2009). *Education*. Saudi Arabia: Ministry of Education.

Ministry of Finance. (2002). *Economic Survey of Pakistan*. Islamabad, Pakistan: Ministry of Finance, Government of Pakistan.

Ministry of Finance. (2009). *Economic Survey of Pakistan*. Islamabad, Pakistan: Ministry of Finance, Government of Pakistan

Minow, M. (2003). Public and private partnerships: Accounting for the new religion. *Harvard Review, 116(5),* 1229-1270.

Mir (2001). Basic education in Pakistan and Afghanistan: the Current Crisis and Beyond. Conference. Washington, D.C. The Brookings Institution.

Mizala, A. & Romaguera, P. (2000). School Performance and Choice: The Chilean Experience. *Journal of Human Resources 35*(2): 392–417.

Moe, T. M. (1995). *Private vouchers*. Stanford, CA: Hoover Institution Press.

Montgomery, M.R., Gragnolati, K., Burke. A, & Paredes, E. (2000). Measuring living standards with proxy variables. *Demography, 3,*155-74.

Murnane, R.J.(1983). The Uncertain Consequences of Tuition Tax Credits: An Analysis of Student Achievement and Economic Incentives. In James T. and Levin H. M. (eds.) *Public Dollars for Private Schools.* Philadelphia: Temple University Press

National Bureau of Economic Research. (2008). The Basic Public Finance of Public-Private Partnerships. NBER Working Paper No. 13284

Neal, D. (1997). The Effects of Catholic Secondary Schooling on Educational Attainment. *Journal of Labor Economics, 15,* 98–123.

Newcomb, R. (2008). *Women of Fes: Ambiguities of Urban Life in Morocco.* Philadelphia: University of Pennsylvania Press.

Newmann, F. M., Wehlage, G. G., & Lamborn, S. D. (1992). The significance and sources of student engagement. In F. M. Newmann (Ed.), *Student engagement and achievement in American secondary schools*, (pp.11-39). New York: Teachers College Press.

North, D. C. (1991). Institutions. *The Journal of Economic Perspectives, 5*(1): pp.97-112.

OECD. (1994). *School: a matter of choice*. Paris, OECD.

Ogbu, J.U. (1992). Understanding cultural diversity and learning. *Educational Researcher, 21,*5-14.

Orazem, P. F. (2000). *The Urban and Rural Fellowship School Experiments in Pakistan. Design, Evaluation and Sustainability.* Washington, D.C.: The World Bank

Oreopoulos, P. & Salvanes, K.G. (2009). How large are returns to schooling? Hint: Money isn't everything. *Working Paper*. Cambridge, MA: National Bureau of Economic Research

Osborne, D. & Gaebler, T. (1992). *Reinventing government: How the entrepreneurial spirit is transforming government.* Reading, MA: Addison-Wesley.

Patrinos, H. A. (2000). Market Forces in Education. *European Journal of Education* 35(1): 61–80.

Patrinos, H.A., Barrera-Osario, F., & Guaqueta, J. (2009). *The role and impact of public-private partnerships in education.* Washington, D.C.: The World Bank

Peshkin, A. (1988). *God's Choice: the Total World of a Christian Fundamentalist School*. Chicago, IL: University of Chicago Press.

Pink, J. (2003). Nationalism, religion, and the Muslim-Christian relationship: Teaching ethics and values in Egyptian schools. Vilnius, Lithuania: Center for Studies on New Religions.

Population Census Bureau. (1998). *Population Census of Pakistan*. Islamabad, Pakistan: Population Census Bureau, Government of Pakistan.

Portes, A. & Zhou, M. (1994). Should immigrants assimilate? *Public Interest*. Washington, D.C

Powers, J.M. & Cookson, P.W. (1999). The politics of school choice research: Fact, fiction, and statistics. *Educational Policy, 13*(1), 104-122

Pretty, J. (2003). *Social capital and connectedness: Issues and implications for agriculture, rural development and natural resource management in ACP countries* CTA.

PROFIT (2001). *Public private partnerships; introduction, handbook, recommendations and conclusions,* Private Operations and Financing of TEN's, ST-98-SC.3035.

Psachoropoulos, G. & Woodhall, M. (1985). *Education for development: An analysis of investment choices*. New York, NY: Oxford University Press

Psachoropoulos, G. & Patrinos, H. (2004). Returns to investment in education: a further update. *Education Economics, 12*(2), 111-134.

Puhani, P. (2000). The Heckman Correction for sample selection and its critique. *Journal of Economic Surveys, 14* (1), 53–68.

Punjab Education Foundation. (2009). *Approval of Budget Estimates for the Financial Year 2009-10*. Lahore, Pakistan: Punjab Education Foundation

Putnam, R. D. (2000) *Bowling Alone: The Collapse and Revival of American Community.* New York: Touchstone.

Rahman, K. & Bukhari, S.R. (2004). Religious Education Institutions (REIs): Present situation and future strategy. *Policy Perspectives, 2*(1)

Ravallion M., & Wodon, Q. (2000). Does Child Labor Displace Schooling? Evidence on Behavioral Responses to an Enrollment Subsidy. *Economic Journal, 110*: C158–75.

Raynor, J., & Wesson, K. (2006). The Girls' Stipend Program in Bangladesh. *Journal of Education for International Development.*

Reich, R. (2006). "When Adequate Isn't: The Retreat From Equity in Educational Law and Policy and Why it Matters. *Emory Law Review*, 56(3).

Robinson, W.S. (1950). Ecological correlations and the behavior of individuals. *American Sociological Review, 15*(3), 351-351

Rodrik, D., Subramanian, A. & Trebbi, F. (2004). Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development. *Journal of Economic Growth 9*(2): pp. 131-165.

Rofes, E. (1998). *How are school districts responding to charter laws and charter schools?: A study of eight states and the District of Columbia*. Berkeley, CA: Policy Analysis for California Education.

Ronen, S. & Kraut, A. (1977). Similarities among countries based on employee work values and attitudes. *Columbia Journal of World Business, 12*, 89-96

Rosenau, P.V. (1999). Introduction: the strengths and weaknesses of public-private policy partnerships, *American Behavioral Scientist*, *43*(10),10-34

Rosenau, P. V. (2000). *Public-Private Policy Partnerships*. MIT Press

Rosenbaum, P. R., & Rubin, D. B. (1983). The central role of the propensity score in observational studies for causal effects. *Biometrika, 70*, 41-55.

Rostow, W. W. (1991). *The stages of economic growth: A non-communist manifesto.* Cambridge, MA: Cambridge University Press

Rothstein, R. (2004). *Class and Schools*. New York, NY: Teachers College Press.

Rouse, C. E. (1998). *Schools and student achievement: More evidence from the Milwaukee Parental Choice Program*.Working Paper No. 396, Industrial Relations Section, Princeton University, Princeton, NJ.

Rouse, C. E. (2005). Labor market consequences of an inadequate education. Paper prepared for the symposium on the Social Costs of Inadequate Education, Teachers College Columbia University, October 2005.

Rouse, CE. & L. Barrow. (2008). School Vouchers and Student Achievement: Recent Evidence, Remaining Questions.

Royston, P. (2004). Multiple imputation of missing values. *Stata Journal*, *4*, 227–241.

Rumberger, R.W. (1987). High school dropouts: A review of issues and evidence. *Review of Educational Research, 57,* 101-121.

Rumberger, R.W. (2011). *Dropping Out: Why Students Drop out of High School and What can be Done about it*. Cambridge, MA: Harvard University Press.

Sahn D. & Stifel D. (2003). Exploring alternative measures of welfare in the absence of expenditure data. *Review of Income and Wealth, 49,*463-89

Sander, W. (1996). Catholic Grade Schools and Academic Achievement. *Journal of Human Resources, 31*(3), 540–48.

Sapelli, C. & B. Vial (2002). The Performance of Private and Public Schools in the Chilean Voucher System. *Cuadernos de Economía*, 39, Santiago, Chile.

Sarangapani, P.M. (2009). Right to Education Act and Public-Private Partnership. *Economic and Political Weekly, 24*

Savas, E. S. (2000). *Privatization and Public-Private Partnerships*, New York: Chatham House Publishers.

Savas, E.S. (2005). Privatization and public-private partnerships. *Privatization in the City: Successes, Failures, and Lessons*. Washington, D.C.: CQ Press

Sawada, Y. & Lokshin, M. (2001). Household schooling decisions in rural Pakistan. Washington, D.C.: The World Bank, Policy Research Working Paper Series.

Schagen (2009). The Relative Quality and Cost effectiveness of Private and Public Schools for Low-Income Families: A Case Study in a Developing Country", *School Effectiveness and School Improvement*, Vol 20, 4, 1-28.

Schmid, A.A. (2005). An institutional economics perspective on economic growth. *International Workshop on Institutional Economics*. East Lansing, MI: Michigan Sate University.

Schmidt, K.M. (1996). The costs and benefits of privatization: an incomplete contracts approach.

Journal of Law, Economics, and Organization, 12(1), 1-24

Schmidt, P.(1995). Looking the Other Way. *Education Week. 14* (21) pp. 23-27.

Schneider, M., Teske, P., & Marschall, M. (2000). *Choosing schools: Consumer choice and the quality of American schools.* Princeton, NJ: Princeton University Press.

Schultz, T. W. (1971). *Investment in human capital*. New York, NY: The Free Press

Seabright, P. (1996). Accountability and decentralization in government: an incomplete contracts model. *European Economic Review, 40*, 61-89

Sen, A. (1999). *Development as Freedom*. New York, NY: Random House Inc.

Sennett, R. & Cobb, J. (1973). *The Hidden Injuries of Class*. New York, NY: Vintage

Serageldin, I., & Grootaert, C (1997). *Defining social capital: an integrating view*. Washington DC: The World Bank

Shafiq, M. N. (2010). Do education and income affect support for democracy in Muslim countries? Evidence from the Pew Global Attitudes Project. *Economics of Education Review, 29*(3), 461-469.

Shah, A. & Schacter, M. (2004). Combating Corruption: Look Before You Leap. *Finance and Development*, 40-43.

Shulman, J. (2011). *Introduction to "Who owns the soul of the child?: Religion parenting rights and the enfranchisement of the child."* Washington, D.C.: Georgetown University Law Center.

Shwartz, A. & Wilde, L.L. (1979) Equilibrium comparison shopping. *The Review of Economic Studies, 46(*3), 543-553

Singer, P. W. (2001). Pakistan's Madrassahs: Ensuring a System of Education not Jihad. Analysis Papers 41.Washington, DC: Brookings Institution

Sirota, D. & Greenwood, M. (1971). Understand your overseas work force. *Harvard Business Review, 19*, 53-60

Skaalvik, E.M. & Rankin, R.J. (1994). Gender differences in mathematics and verbal avhievement, self-perception and motivation. *British Journal of Educational Psychology, 64*(3), 419-428

Spelke, E.S. (2005). Sex differences in intrinsic aptitude for mathematics and science?: a critical

review. *American Psychologist, 60*(9), 950-958

Stark, R. (1999). Secularization, R.I.P. *Sociology of Religion, 60*(3), 249-273

Stiglitz, J. E. (1988). *Economics of the public sector,* 2nd Edition, Norton.

Stiglitz, J. E. & Wallersten, S. J (1999). Public-private technology partnership: Promises and pitfalls. *American Behavioral Scientist, 43*, 52-74.

Stoker, G. (1998). Governance as theory: five propositions. *International Social Science Journal, 50*(155), 17-28.

Swanson, C., & B. Schneider. (1999). Students on the Move: Residential and Educational Mobility in America's Schools. *Sociology of Education* (72): pp. 54-67.

Tansel, A. (1997). School Attainment, Parental Education and Gender in Cote d'Ivoire and Ghana. *Economic Development and Cultural Change*, *45*(4):825-56.

Taylor, R. J. (2003). Contracting for Health Services. In A. Harding and A. Preker (Eds.), *Private Participation in Health Services Handbook* (pp. 195–204). Washington, DC: World Bank.

Teese R., Polesel J., & Keating J. (2002) *The Latter Year: Report to The Victorian Department of Education and Training,* Unpublished paper, Educational Outcomes Research Unite, Faculty of Education, University of Melbourne.

The World Bank. (1988). *Education in Sub-Saharan Africa: Policies for Adjustment, Revitalization, and Expansion*. Washington D.C.: The World Bank.

The World Bank. (2006). *Colombia Contracting Education Services*. Report 31841-CO. Washington, DC.: The World Bank

The World Bank. (2007). *World Development Indicators*. Washington, D.C.: The World Bank.

The World Bank. (2010). *Institutions*. Washington, D.C.: The World Bank (accessed 09/17/2011).

Tooley, J., Dixon, P. & Gomathi S.V. (2007). Private Schools and the Millennium Development Goal of Universal Primary Education: A Census and Comparative Survey in Hyderabad, India, *Oxford Review of Education,* 33(5), 539-60.

Torres, L. & Pina, V. (2001). Public-private partnership and private finance initiatives in the EU and Spanish local governments. *The European Accounting Review*, (10:3), pp. 601-619.

Toynbee, A. (1947). *A Study of History*. New York: Oxford University Press.

Tsang, M.C. (1997). Cost analysis for improved educational policymaking and evaluation. *Educational Evaluation and Policy Analysis, 19*(4), 318-324.

U.S. Department of State. (2000). National Center for Education Statistics. Washington, D.C.: U.S. Department of State.

UNESCO. (2005). *The Education System in Pakistan.*

Urquiola, M. (2006). Identifying Class Size Effects in Developing Countries. *Review of Economics and Statistics, 88*(1), 171-177.

Valila, T. (2005). How expensive are cost-savings? On the economics of public-private partnerships. *Innovative Financing of Infratructure: the Role of Public-Private Partnerships*. European Investment Bank.

Van Geel, T. (1995). *Citizenship Education and the Free Exercise of Religion*.

van der Klaauw, W. (2007). Regression-discontinuity analysis. *The New Palgrave Dictionary of Economics*.

Van Thiel, S. & Leeuw, F.L. (2002). The performance paradox in the public sector. *Public Performance and Management Review, 25*(3), 267-281.

von Hirschhausen, C. (2001). "Issues in private participation in infrastructure—An introduction". Background paper prepared for the Berlin Summer School on private participation in infrastructure.

Vyas, S. & Kumaranayake, L. (2006). Constructing socio-economic indices: how to use principal components analysis. *Health Policy and Planning, 21*(6), 459-468

Wehlage, G. G., Rutter, R. A., Smith, G. A., Lesko, N., & Fernandez, R. R. (1989). *Reducing the Risk: Schools as Communities of Support*. New York: Falmer Press.

Weiler, H.N. (1990). Comparative perspectives on educational decentralization: An exercise in contradiction? *Educational Evaluation and Policy Analysis, 12*(4): pp. 433-448.

Wells, A. S. (1996). African American students'viewof school choice. In B. Fuller, R. F. Elmore,& G. Orfield (Eds.), *Who chooses? Who loses? Culture, institutions and the unequal effects of school choice* (pp. 25-49). New York: Teachers College Press.

Wells, A.S. & Crain.R.L. (1992). Do Parents Choose School Quality or School Status? A

Sociological Theory of Free Market Education. In: Cookson, P.W. (ed.) *The Choice Controversy*. Newbury Park: Corwin Press.

West, E.G. (1996). Education vouchers in practice and principle: A world survey.

Winkler, D. (1993). Fiscal Decentralization and Accountability in Education: Experiences in Four Countries. In Hannaway & Carnoy (Eds.), *Decentralization and School Improvement*. San Francisco, CA: Jossey-Bass.

Wise. A. (1967), *Rich Schools, Poor Schools: The Promise of Equal Educational Opportunity*. p.156.

Wiseman, A. & Baker, D. (Eds.). (2006). The impact of comparative education research on institutional theory. *International perspectives on education and society*. St. Louis, MO: Elsevier.

Witte, J. F. (1996a). Who benefits from the Milwaukee choice program. In B. Fuller, R. F. Elmore & G. Orfield (Eds.), *Who chooses? Who loses? Culture, institutions and the unequal effects of school choice* (pp. 118-137). New York: Teachers College Press.

Witte, J. F. (1996b). *Reply to Greene, Peterson, and Du: The effectiveness of school choice in Milwaukee: A secondary analysis of data from the program's evaluation*. Madison, WI: Department of Political Science and the Robert LaFollette Institute of Public Affairs, University of Wisconsin–Madison.

Witte, J. F., Thorn, C. A., Pritchard, K. M.,& Clairborn, M. (1994) *Fourth-year report: Milwaukee Parental Choice Program*. Madison, WI: Department of Political Science and the Robert LaFollette Institute of Public Affairs, University of Wisconsin–Madison

Wodon, Q. & Ying, Y. (2009). Literacy and Numeracy in Faith-Based and Government Schools in Sierra-Leone. In F. Barrera-Osorio, H.A. Patrinos, & Q. Wodon (Eds.) *Emerging Evidence on vouchers and faith based providers in Education: Case studies from Africa, Latin America, and Asia*. Washington D.C.: The World Bank.

Woessmann, L. (2005). Public-Private Partnerships in Schooling: Cross-Country Evidence on their Effectiveness in Providing Cognitive Skills." Prepared for the conference *Mobilizing the Private Sector for Public Education*. Cambridge, MA: Kennedy School of Government, Harvard University, & The World Bank.

Wolf, P.J. (2011). *The Comprehensive Longitudinal Evaluation of the Milwaukee Parental Choice Program: Summary of Fourth Year Reports*. University of Arkansas: SCDP Milwaukee Evaluation.

Woolcock, M. (2001). The place of social capital in understanding social and economic

outcomes. *Printemps Spring*.

Younger, M. & Warrington, M. (1996). Differential achievement of girls and boys at GCSE: some observations from the perspective of one school. *British Journal of Sociology of Education, 17*(3), 299-313

Appendices

Appendix A - Tables

Table 1 – Mean test scores of Full sample Public, Private, and FAS program schools

Subject	Mean Score (standard deviations)		
	School Type		
	Public	Private[1]	FAS[2]
5th grade			
Total	-0.041	0.065***	0.531***
Math	-0.009	0.014***	0.158***
English	-0.041	0.066***	0.419***
Urdu	-0.027	0.042***	0.451***
Islamic Studies	-0.047	0.075***	0.339***
Science	-0.026	0.042***	0.600***
8th grade			
Total	-0.008	0.012***	0.255***
Math	0.002	-0.003	0.215***
English	-0.005	0.008***	0.209***
Urdu	-0.010	0.015***	0.182***
Islamic Studies	-0.004	0.007***	0.162***
Science	-0.009	0.015***	0.225***

[1]Private schools compared to public schools
[2]FAS program schools compared to non-FAS schools
*=sig. at 10%; **=sig. at 5%; ***=sig. at 1%

Table 2 – Mean test scores for first matched sample (public and private schools)

Subject	**School Type**	
	Public	Private[1]
5th grade		
Total	-0.040	0.106***
Math	-0.010	0.025***
English	-0.039	0.103***
Urdu	-0.029	0.075***
Islamic Studies	-0.044	0.116***
Science	-0.030	0.079***
8th grade		
Total	-0.010	0.026***
Math	-0.009	0.024***
English	-0.009	0.024***
Urdu	-0.006	0.017***
Islamic Studies	-0.007	0.020***
Science	-0.009	0.024***

Note: Scores are in standard deviations.
Total scores for the exams also include other subjects that are not included in the analysis, such as social studies, Arabic, and any elective subject in 8th grade.

*=sig. at 10%; **=sig. at 5%; ***=sig. at 1%

[1]Private schools compared to public schools

Table 3 – First Matched sample (Public and Private schools) - Descriptive Statistics of Covariates[1]

		PUBLIC	PRIVATE
		MEAN	MEAN
MAIN COVARIATES		N^2 = 52602	N =19852
School background			
School location (%)			
Urban		0.10	0.11
School Level (%)			
Primary		0.85	0.840
Middle		0.09	0.090
Duration of School Establishment (years)[3]		39.06	36.7
Main medium of Instruction (%)			
English		0.18	0.66
School Registration Status (%)	Registered[4]	0.98	0.53
School Infrastructure			
Any new construct (%)	Repair	0.03	0.03
	Toilet	0.94	0.94
	Classroom	0.03	0.03
School area (no. of kanals) [5]		6.16	8.33
Covered area (sq. ft).		3663.4	5648.93
No. of classrooms		4.04	4.34
No. of open air classrooms		2.31	2.44
Drinking water (%)	Yes	0.87	0.87
Electricity(%)	Yes	0.60	0.59
Toilet (%)	Yes	0.79	0.79
No. of toilets		2.05	2.25

Boundary wall (%)	Yes	0.79	1.00
Main gate(%)	Yes	0.78	0.77
Sewerage (%)	Yes	0.78	0.62
Playground (%)	Yes	0.43	0.42
Library (%)	Yes	0.26	0.26
Physics lab (%)	Yes	0.01	0.01
Chemistry (%)	Yes	0.01	0.01
Biology lab (%)	Yes	0.01	0.01
Home-economics lab (%)	Yes	0.01	0.01
Combined lab (%)	Yes	0.05	0.04
School teacher and student characteristics			
Difference (sanctioned minus filled) (no.)		0.96	
Student-teacher ratio		40.51	22.18
Male teachers (% of total teachers)		0.22	0.23
School size (total enrollment)		261.30	218.49
Boys enrolled (%)		0.52	0.51
School community characteristics			
School management committee (no. of meetings)		7.3	
School management committee Members (no.)	Total	7.72	
School committee member type (%)	Male	0.74	

Female	0.26	
Parent[6]	0.52	
Teacher	0.18	
General	0.30	
Chair	0.26	

Notes:

[1] Graphical tests of normality (including histograms, normal quantile plots, normal probability plots, and kernel density plots) as well as the Shapiro-Wilks test were conducted that showed that the residuals of all covariates were normally distributed.

[2] PSUs are primary sampling units in the survey, which are schools in this case. 125 strata/tehsils are used.

[3] Overall, school age for all types of schools have a wide range. Some schools are more than a century old and were set up during British colonial times and are now operated by Punjab's Ministry of Education. The maximum is 286 years. School age of 0 means that the school has been established the same year as the information was collected.

[4] The remaining 2% could possibly be due to reporting error or some newly established schools that are still in the process of being registered. Answers between unregistered and under process can overlap depending on how the respondent understand the questions and answers "no" or "under process."

[5] 1 kanal is equal to 605 square feet.

[6] There are more parents than teachers (4 versus 1.4, or 52 versus 18%) or general members. This can point towards laying a heavier emphasis on parental school choice, especially at the primary and middle levels. The qualitative chapter in this dissertation interviews parents in order to examine the motivations behind their school choice.

Table 4 – Mean test scores for second matched sample (public and FAS program schools)

Subject	**School Type**	
	Public	FAS[1]
5th grade		
Total	-0.015	0.521***
Math	-0.005	0.184***
English	-0.012	0.407***
Urdu	-0.012	0.425***
Islamic Studies	-0.010	0.352***
Science	-0.017	0.584***
8th grade		
Total	-0.007	0.253***
Math	-0.006	0.205***
English	-0.006	0.204***
Urdu	-0.005	0.176***
Islamic Studies	-0.004	0.158***
Science	-0.006	0.225***

Note: Scores are in standard deviations.
Total scores for the exams also include other subjects that are not included in the analysis, such as social studies, Arabic, and any elective subject in 8th grade.

*=sig. at 10%; **=sig. at 5%; ***=sig. at 1%

[1]FAS program schools compared to public schools

Table 5 – Second Matched sample (Public and FAS program schools) - Descriptive Statistics of Covariates[1]

		PUBLIC	FAS
		MEAN	MEAN
MAIN COVARIATES		N^2=53162; FAS = 1779	
School background			
School location (%)			
	Urban	0.10	0.11
School Level (%)			
	Primary	0.66	0.28
	Middle	0.31	0.68
Duration of School Establishment (years)		39.17	38.36
Main medium of Instruction (%)			
	English	0.35	0.75
School Registration Status (%)	Registered	0.98	0.94
School Infrastructure			
Any new construct (%)	Repair	0.03	0.03
	Toilet	0.94	0.94
	Classroom	0.03	0.03
School area (no. of kanals)		6.56	6.40
Covered area (sq. ft).		4002.15	5648.93
No. of classrooms		4.10	4.05
No. of open air classrooms		2.32	2.30
Drinking water (%)	Yes	0.87	0.87
Electricity(%)	Yes	0.79	0.84
Toilet (%)	Yes	0.82	0.82
No. of toilets		2.09	2.09

Boundary wall (%)	Yes	0.79	1.00
Main gate(%)	Yes	0.78	0.77
Sewerage (%)	Yes	0.83	0.83
Playground (%)	Yes	0.43	0.42
Library (%)	Yes	0.26	0.26
Physics lab (%)	Yes	0.01	0.00
Chemistry (%)	Yes	0.01	0.00
Biology lab (%)	Yes	0.01	0.00
Home-economics lab (%)	Yes	0.00	0.00
Combined lab (%)	Yes	0.05	0.00
School teacher and student characteristics			
Difference (sanctioned minus filled) (no.)		0.92	
Student-teacher ratio		40.51	21.70
Male teachers (% of total teachers)		0.22	0.23
School size (total enrollment)		303.27	316.49
Boys enrolled (%)		0.49	0.51
School community characteristics			
School management committee (no. of meetings)		7.29	
School management committee Members (no.)	Total	7.73	
School Committee member type (%)	Male	0.73	

Female	0.27	
Parent	0.52	
Teacher	0.18	
General	0.30	
Chair	0.25	

Notes:
[1] Graphical tests of normality (including histograms, normal quantile plots, normal probability plots, and kernel density plots) as well as the Shapiro-Wilks test were conducted that showed that the residuals of all covariates were normally distributed.
[2] PSUs are primary sampling units in the survey, which are schools in this case. 124 strata/tehsils are used.
[3] Overall, school age for all types of schools have a wide range. Some schools are more than a century old and were set up during British colonial times and are now operated by Punjab's Ministry of Education. The maximum is 286 years. School age of 0 means that the school has been established the same year as the information was collected.
[4] The remaining 2% could possibly be due to reporting error or some newly established schools that are still in the process of being registered. Answers between unregistered and under process can overlap depending on how the respondent understand the questions and answers "no" or "under process."
[5] 1 kanal is equal to 605 square feet.
[6] There are more parents than teachers (4 versus 1.4, or 52 versus 18%) or general members. This can point towards laying a heavier emphasis on parental school choice, especially at the primary and middle levels. The qualitative chapter in this dissertation interviews parents in order to examine the motivations behind their school choice.

Table 6 – 5th grade Private schools PSM analysis

	Dependent Variables – Total and Subject scores					
	Total	**Math**	**English**	**Urdu**	**Islamic Studies**	**Science**
Independent variables						
School background						
Private	0.119***	0.047***	0.102***	0.101***	0.130***	0.097***
Urban	0.045***	0.018**	0.041***	0.049***	0.047**	0.021*
Registered?	0.082***	0.038***	0.067***	0.056***	0.053***	0.099***
Primary level	0.068***	0.022***	0.070***	0.070***	0.044***	0.051**
Medium of instruction	0.105***	0.022***	0.101***	0.055***	0.102***	0.046***
School age (s.d.)	0.001	-0.000	0.005	-0.003	0.003	-0.004
School infrastructure						
Any new construct?	-0.075***	-0.023***	-0.053***	-0.065***	-0.069***	-0.078***
Drinking water?	-0.044***	-0.021***	-0.031***	-0.033***	-0.004	-0.053***
Electricity?	-0.018**	-0.003	-0.010	0.007	-0.032***	-0.017**
Toilet?	-0.003	-0.003	-0.001	-0.005	0.002	-0.013
No. toilets	-0.013***	-0.008***	-0.008**	-0.005	-0.009**	-0.014***
Sewerage?	-0.014**	-0.011***	-0.030***	-0.009	-0.012*	0.001
Playground?	-0.038***	-0.005	-0.022***	-0.026***	-0.048***	-0.047***
Library?	0.091***	0.030***	0.062***	0.084***	0.075***	0.100***
School area (s.d.)	0.003	0.003*	0.005	-0.003	0.000	0.003
Covered school area (s.d)	-0.001	-0.001	-0.002	0.003	-0.003	0.001
No. of classrooms (s.d.)	-0.002	0.002	-0.006	-0.003	0.001	-0.007
Teacher and student characteristics						
Sanctioned-filled (s.d.)	-0.002***	-0.003	-0.001	-0.001	-0.001	-0.001***
% Male teachers	0.037***	0.015***	0.022***	0.033***	0.014***	0.047***
Teacher-student ratio(s.d.)	0.007***	0.002	0.006**	0.007***	0.004**	0.009***
Total enrollment (s.d.)	-0.001	-0.006	-0.009	0.007	-0.014***	-0.002
% boys	0.014***	0.005***	0.001	0.012*	0.006	0.012*
Community						
SMC meetings	-0.025***	-0.003*	-0.006***	-0.003***	-0.002**	-0.003***
SMC total members	-0.020***	-0.007***	-0.003***	-0.009**	-0.009**	-0.018**
SMC % women	0.001	-0.002	-0.000	0.006**	0.007***	-0.001
SMC % men	-0.008***	0.003*	0.006*	0.009***	0.005	0.008***
SMC % parent member	-0.004	-0.004**	0.001	-0.001	-0.009**	0.000
SMC % teacher member	0.013***	0.005***	0.011***	0.013***	0.015***	0.013***
SMC % general member	-0.000	0.001	-0.001	-0.001	0.009**	-0.003
SMC % chair member	-0.002	-0.003*	-0.007**	-0.003	0.002	0.005*
Constant	-0.086***	-0.032***	-0.094***	-0.077***	-0.074***	-0.067***
R-squared	0.0136	0.0033	0.0100	0.0081	0.0120	0.0117

Note: All test scores and labeled coefficients are in s.d. with mean 0 and standard deviation 1.
Sig. level :*p<0.1, **p<0.05, ***p<0.01.
Variables ending with "?" are dummy coded where 1 means yes and 0 means no.

Table 7 – 8th grade Private schools PSM analysis

	Dependent Variables – Total and Subject scores					
	Total	**Math**	**English**	**Urdu**	**Islamic Studies**	**Science**
Independent variables						
School background						
Private	0.005	-0.003	0.003	0.016	0.004	0.006
Urban	0.019***	0.028**	0.014**	-0.005	0.029**	0.025***
Registered?	-0.002	-0.013	-0.040***	0.032***	-0.007	-0.036***
Middle level	0.003*	0.040**	0.002	0.015**	0.005**	0.007
Medium of instruction	0.072***	0.064***	0.048***	0.043***	0.049***	0.046***
School age (s.d.)	0.000	0.008***	0.002	-0.006***	-0.002	0.002
School infrastructure						
Any new construct?	-0.019***	-0.021***	-0.012***	-0.017***	-0.010***	-0.013***
Drinking water?	0.000	0.007	-0.002	0.000	-0.009	0.006
Electricity?	-0.009**	-0.006	0.004	-0.009**	-0.004	-0.009**
Toilet?	0.010**	-0.004	0.002	0.024**	0.005	0.013**
No. toilets	-0.000*	-0.009***	-0.003	-0.001	-0.006***	-0.006***
Sewerage?	0.004	-0.000	0.004	-0.000	-0.001	-0.006*
Playground?	-0.017***	-0.011***	-0.015***	-0.002	-0.002	-0.016***
Library?	0.020***	0.012	0.011**	0.017***	0.014	0.015***
School area (s.d.)	-0.005**	0.002	-0.005**	-0.007***	0.005**	-0.005**
Covered school area (s.d)	-0.001	-0.006**	0.001	-0.006**	-0.002	-0.002
No. of classrooms (s.d.)	-0.003	-0.008***	-0.010***	0.002	0.003	-0.004*
Teacher and student characteristics						
Sanctioned-filled (s.d.)	-0.004**	-0.005**	-0.001	-0.001	-0.003*	-0.000
% Male teachers	0.031***	0.030***	0.030***	0.018***	0.019***	0.023***
Teacher-student ratio(s.d.)	0.006***	0.013***	0.001**	0.009***	0.008**	0.002***
Total enrollment (s.d.)	0.017	-0.007**	-0.008	0.002	-0.001**	0.002
% boys	-0.003**	0.007**	-0.0018***	-0.009*	-0.015***	0.013**
Community						
SMC meetings	-0.025***	-0.003*	-0.005*	-0.003	-0.001**	-0.003***
SMC total members	-0.006**	-0.003	-0.008***	-0.003**	0.002	-0.011***
SMC % women	0.002	-0.003	-0.003	0.004**	0.004**	0.003*
SMC % men	-0.002	0.026***	0.006***	-0.017***	-0.014**	0.011***
SMC % parent member	0.008	-0.001	0.001	0.003	-0.001	0.001
SMC % teacher member	0.011***	0.005**	0.012***	0.011***	0.009***	0.004**
SMC % general member	0.000	-0.006***	-0.002	0.002	-0.002	0.008**
SMC % chair member	0.001	0.004	0.003	0.003**	-0.006***	0.0054**
Constant	-0.002	-0.020	0.030**	-0.036***	0.007***	0.031***
R-squared	0.0025	0.0034	0.0019	0.0019	0.0015	0.0017

Note: All test scores and labeled coefficients are in s.d. with mean 0 and standard deviation 1.
Sig. level :*p<0.1, **p<0.05, ***p<0.01.
Variables ending with "?" are dummy coded where 1 means yes and 0 means no.

Table 8 – 5th grade FAS program schools PSM analysis

	Dependent Variable – Total and Subject test scores					
Independent Variables	**Total**	**Math**	**English**	**Urdu**	**Islamic Studies**	**Science**
School background						
FAS program school	0.537***	0.204***	0.433***	0.407***	0.310***	0.630***
Registered?	0.054*	0.030*	0.074**	0.029	0.001	0.076**
Medium of instruction	0.086***	0.020**	0.036**	0.114***	0.144***	0.061***
School location	0.055***	0.021***	0.049***	0.063***	0.057***	0.021
Primary school level	0.013	0.012	-0.007	0.013	0.031	0.017
School age (s.d.)	-0.003	-0.003	0.006	-0.007	-0.001	-0.009*
School Infrastructure						
Any new construct?	-0.098***	-0.033***	-0.065***	-0.084***	-0.090***	-0.102***
School area (s.d.)	0.000	0.003	0.001	-0.007	-0.000	0.001
Covered school area (s.d.)	0.003	0.001	-0.001	0.005	-0.002	0.007
Drinking water?	-0.056***	-0.028***	-0.040***	-0.043***	0.002	-0.073***
Electricity?	-0.009	-0.008	-0.026**	0.001	-0.013	0.007
No. of toilets	-0.020***	-0.012***	-0.012**	-0.008	-0.018***	-0.022***
No. of classrooms (s.d.)	-0.018***	-0.002	-0.023***	-0.020***	-0.009	-0.020***
Playground?	-0.057***	-0.012***	-0.032**	-0.039***	-0.070***	-0.070***
Library?	0.112***	0.043***	0.071***	0.102***	0.090***	0.129***
Teacher and Student Characteristics						
Sanctioned-filled (s.d.)	-0.012**	-0.007***	-0.005	-0.009*	-0.006	-0.012**
% Male teacher	0.014***	0.003***	0.002**	0.002***	0.009***	0.004***
Teacher-student ratio (s.d.)	0.021***	0.040***	0.004***	0.004**	0.003***	0.004***
% boys students	0.016	-0.010	0.005	0.005	0.001**	0.003
Community characteristics						
SMC meetings	-0.005***	-0.002	-0.006***	-0.004	-0.002	-0.006**
SMC total members	-0.017***	-0.010***	-0.024***	-0.010**	-0.000	-0.008**
SMC % women	0.001	-0.004**	0.002	0.007**	0.008***	0.000
SMC % men	0.012***	0.004**	0.009**	0.016***	0.007*	0.011***
SMC % parents	-0.001	-0.004*	0.003	0.005	-0.005	0.006
SMC % teachers	0.016***	0.004*	0.014***	0.017**	0.020***	0.016***
SMC % general member	0.001	0.000	-0.003	0.001	0.011**	-0.001
SMC % chair member	-0.002	-0.005**	-0.009*	-0.003	0.004	0.010**
Constant	0.145**	0.068*	0.184**	0.087	0.012	0.066
R-squared	0.0170	0.0066	0.0101	0.0116	0.0107	0.0200

Note: All test scores and labeled coefficients are in s.d. with mean 0 and standard deviation 1.
Sig. level :*p<0.1, **p<0.05, ***p<0.01.
Variables ending with "?" are dummy coded where 1 means yes and 0 means no.

Table 9 – 8th grade FAS program schools PSM analysis

	Dependent Variable – Total and Subject test scores					
Independent Variables	**Total**	**Math**	**English**	**Urdu**	**Islamic Studies**	**Science**
School background						
FAS program school	0.245***	0.178***	0.194***	0.193***	0.158***	0.212***
Registered?	-0.015	-0.025	-0.054***	0.016	0.015	-0.034**
Medium of instruction	0.031***	0.022**	0.022**	0.034***	0.012	0.016
School location	0.016**	0.025***	0.011	-0.006	0.026***	0.022***
Secondary school level	0.015*	0.001	0.002	0.021**	0.030***	0.020
School age (s.d.)	0.003	0.014***	0.006**	-0.005*	-0.002	0.006***
School Infrastructure						
Any new construct?	-0.-22***	-0.027***	-0.012***	-0.019***	-0.008*	-0.016***
School area (s.d.)	-0.007***	0.000	-0.006**	-0.009***	0.004	-0.010***
Covered area (s.d.)	0.002	-0.005**	0.002	-0.006**	0.003	-0.003
Drinking water?	0.001	0.006	-0.002	0.007	-0.009	0.008
Electricity?	0.002	0.004	0.005	-0.006	-0.008	-0.004
No. of toilets	0.004	-0.010***	0.003	0.005*	-0.003	-0.001
No. of classrooms (s.d.)	-0.006*	-0.018***	-0.016***	0.000	0.001	-0.009***
Playground?	-0.024***	-0.023***	-0.020***	-0.003	-0.003	-0.020***
Library?	0.032***	0.014***	0.017***	0.030***	0.021*	0.0927***
Teacher and Student Characteristics						
Sanctioned-filled (s.d.)	-0.009***	-0.018***	-0.002	-0.001	-0.006***	-0.001
% Male teacher	0.013**	0.002***	0.003***	-0.009***	0.002***	0.002***
Teacher-student ratio	0.026***	0.004	0.004***	0.003***	0.002***	0.002***
Total Enrollment (s.d.)	-0.003***	-0.010***	-0.001**	-0.006***	-0.003***	-0.002*
% boys enrollment	-0.019**	0.000	-0.011**	0.002	0.002***	-0.001
Community characteristics						
SMC meetings	-0.018	-0.002***	0.006	0.005	-0.004*	-0.001***
SMC total members	-0.004*	-0.000	-0.007**	-0.001	0.001	-0.003*
SMC % women	0.003	-0.004*	-0.003	0.005**	0.005**	0.001
SMC % men	-0.006***	0.030***	0.004*	-0.023***	-0.017***	0.011***
SMC % parents	0.001	-0.002	-0.001	0.002	-0.001	0.001
SMC % teachers	0.012***	0.004*	0.012***	0.010***	0.010***	0.005**
SMC % general member	0.001	-0.007**	-0.003	0.002	-0.001	0.006**
SMC % chair member	-0.001	0.004	0.001	0.002	-0.008***	0.003
Constant	0.074***	0.078*	0.122***	-0.036	0.031	0.104**
R-squared	0.0032	0.0041	0.0022	0.0024	0.0017	0.0027

Note: All test scores and labeled coefficients are in s.d. with mean 0 and standard deviation 1.
Sig. level :*p<0.1, **p<0.05, ***p<0.01.
Variables ending with "?" are dummy coded where 1 means yes and 0 means no.

Appendix B – Figures

Figure 1 – Residuals versus fitted values for OLS assumption.

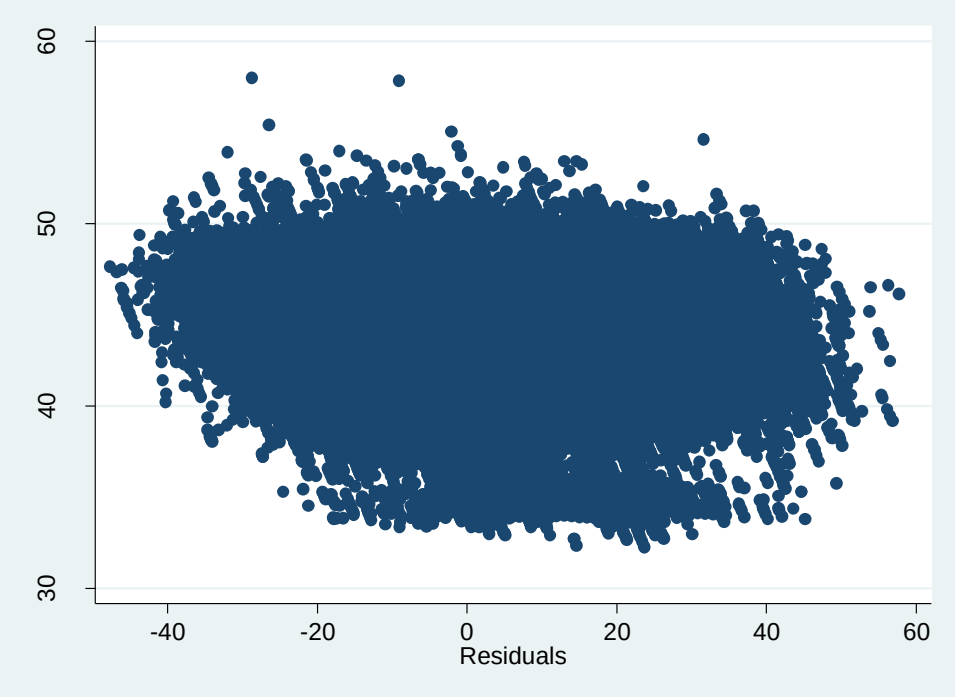
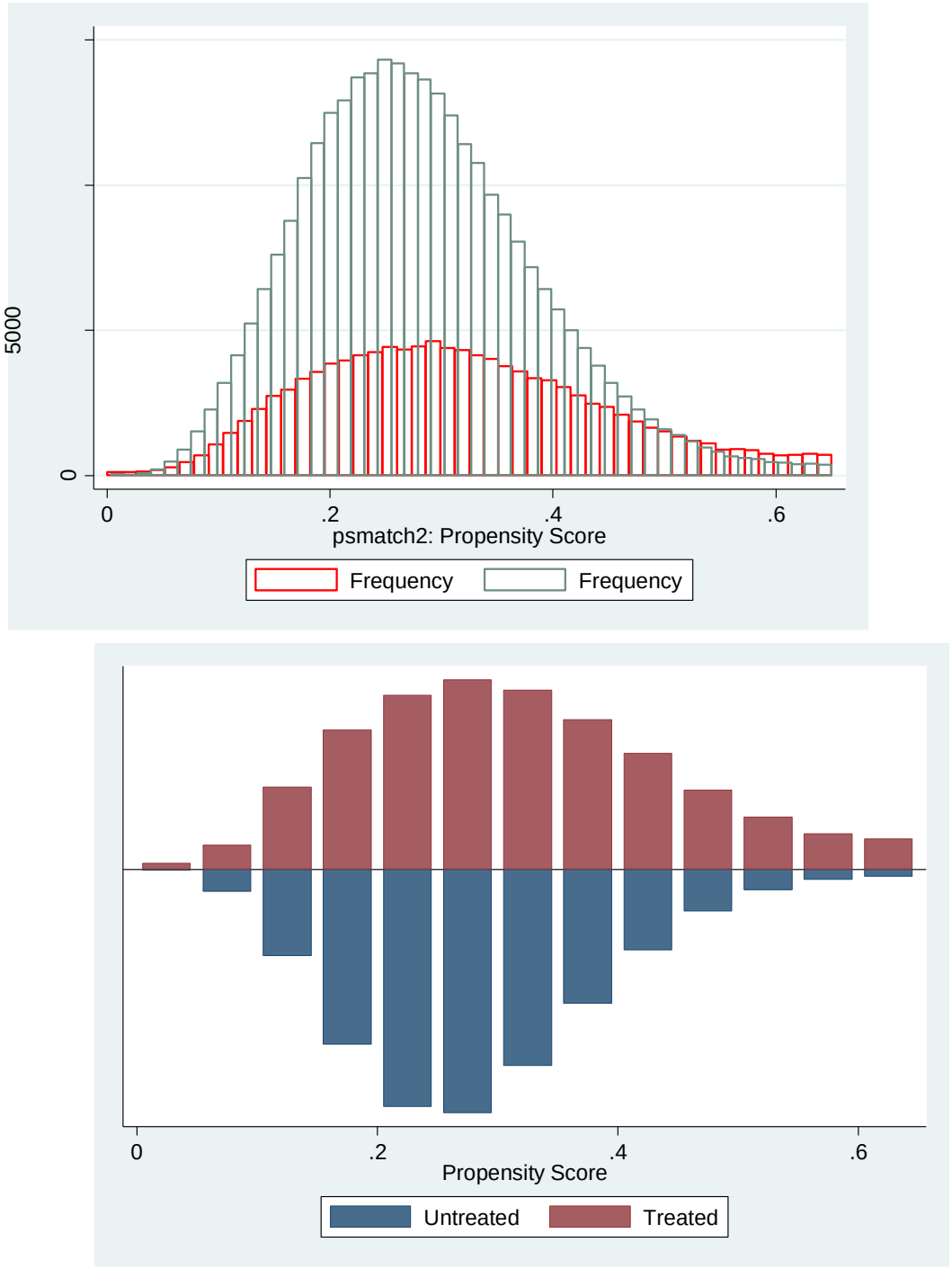


Figure 2 - Overlap between Public and Private Schools from Propensity score matching



Blue – Control group (public schools), Red – Treatment group (private schools)

Figure 3 – Overlap between Public and FAS Program Schools from Propensity score matching

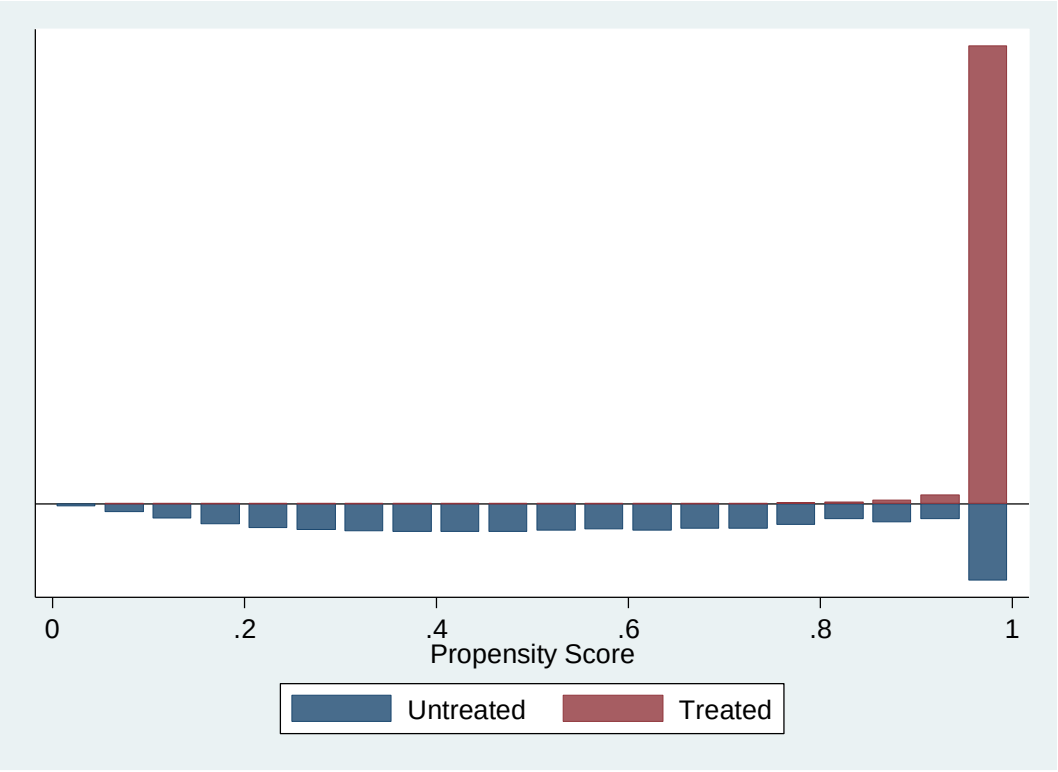
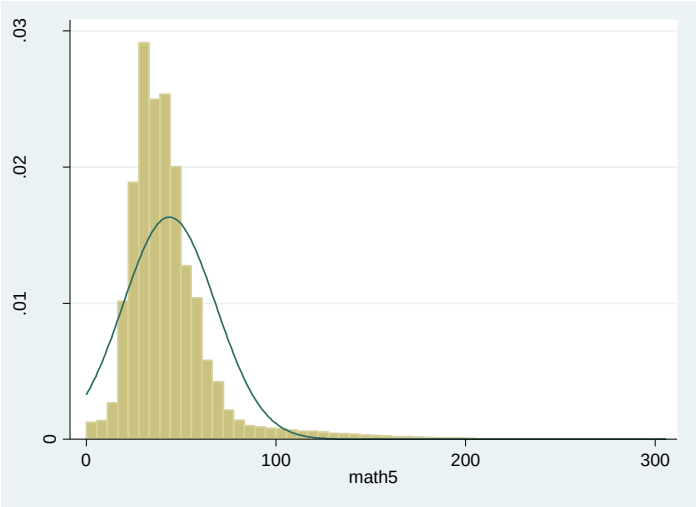
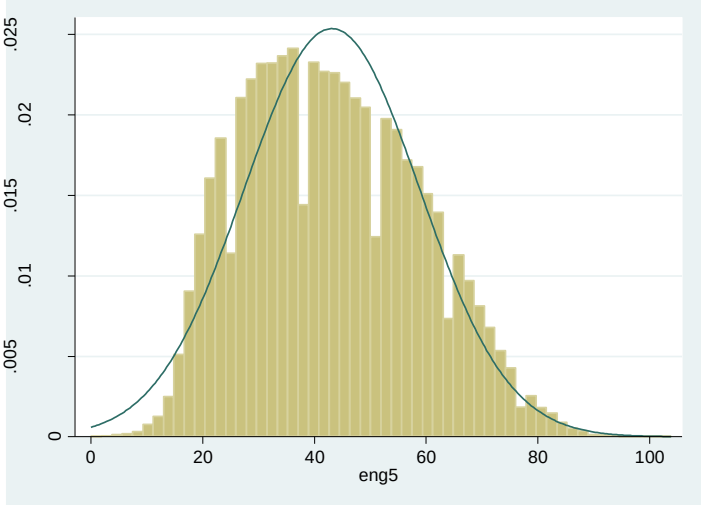
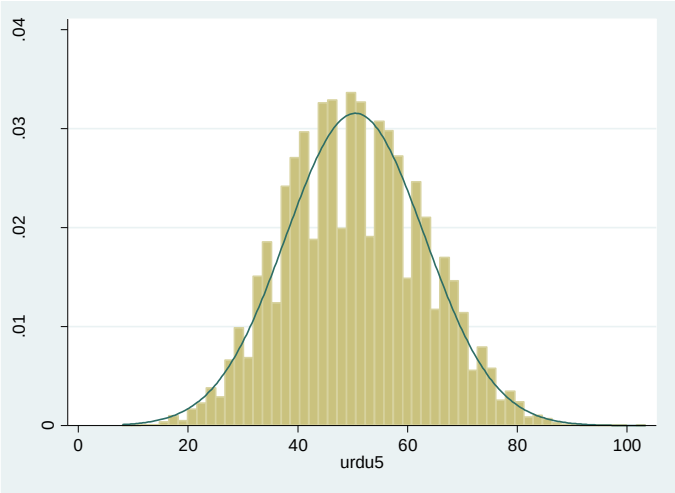


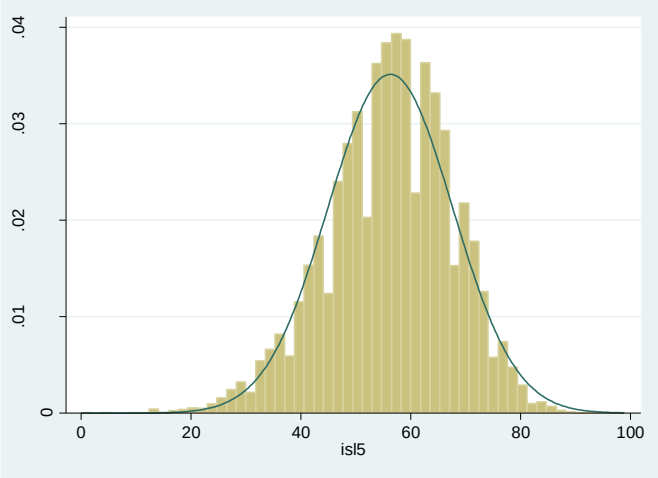
Figure 4 - Descriptive Figures of Test Scores

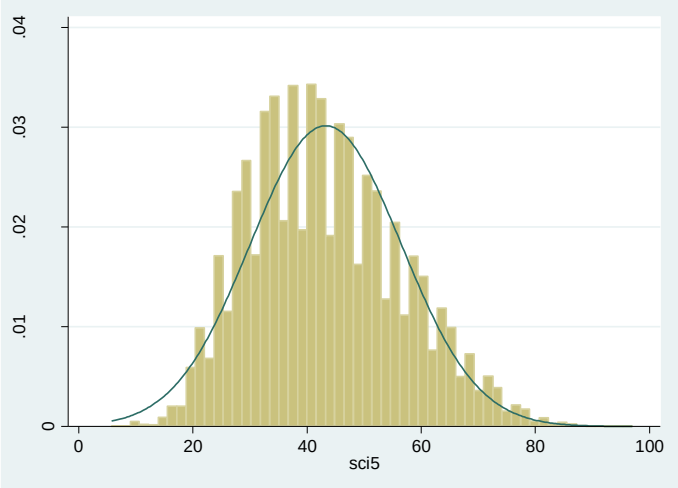
5th grade

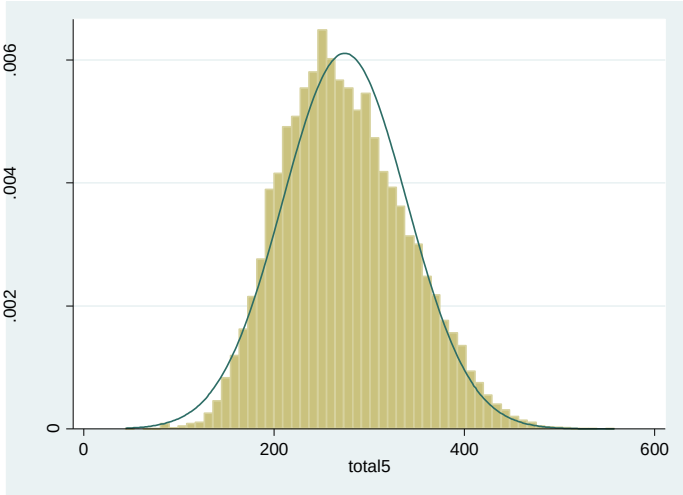




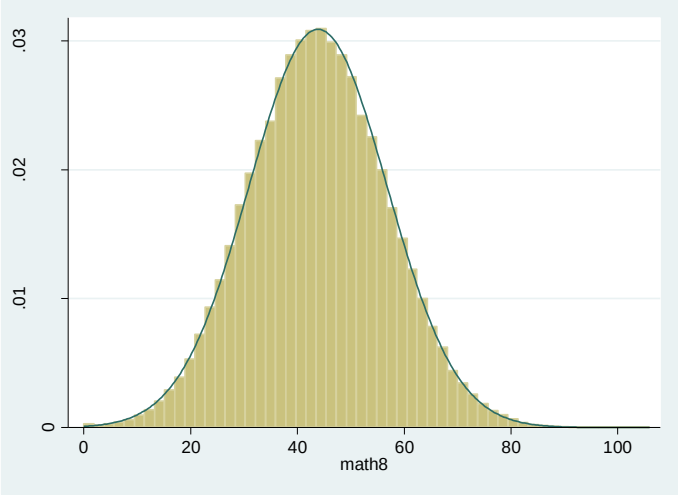

.04
.03
.02
.01
0
0
20
40
60
80
100
urdu5

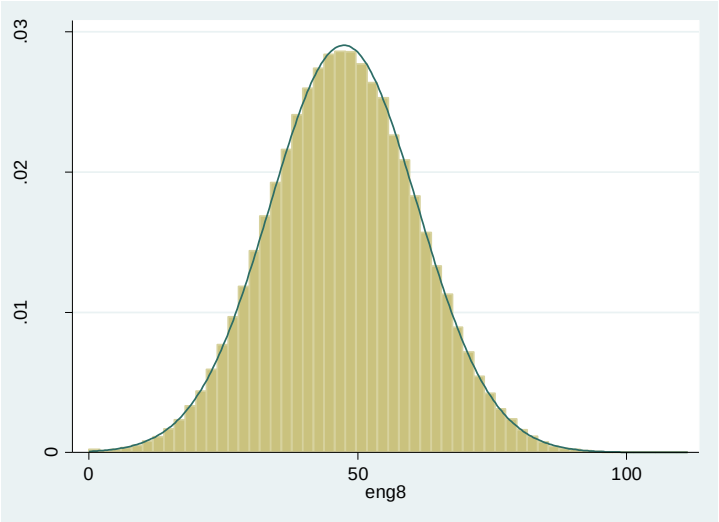

.04
.03
.02
.01
0
0
20
40
60
80
100
isl5

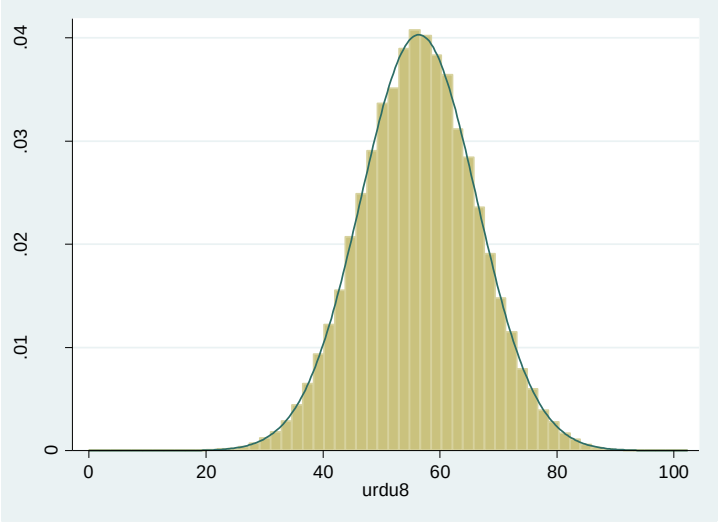

.04
.03
.02
.01
0
0
20
40
60
80
100
sci5

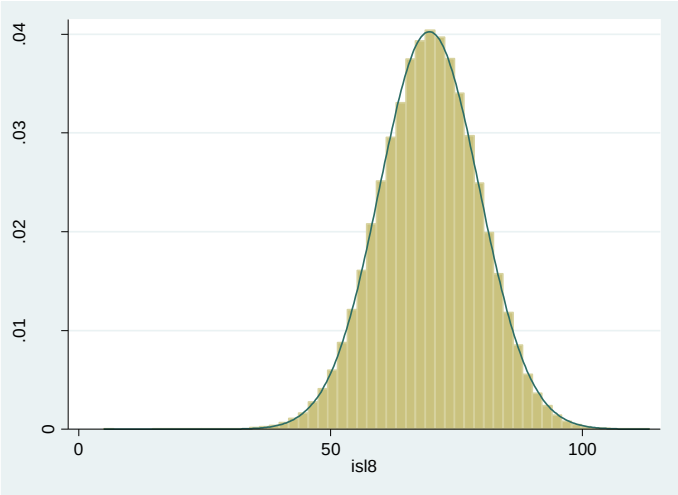

.006
.004
.002
0
0
200
400
600
total5

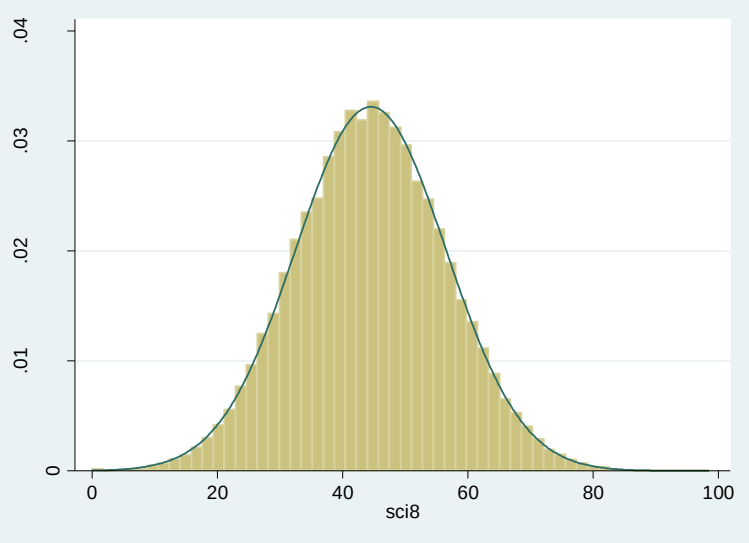
8th grade

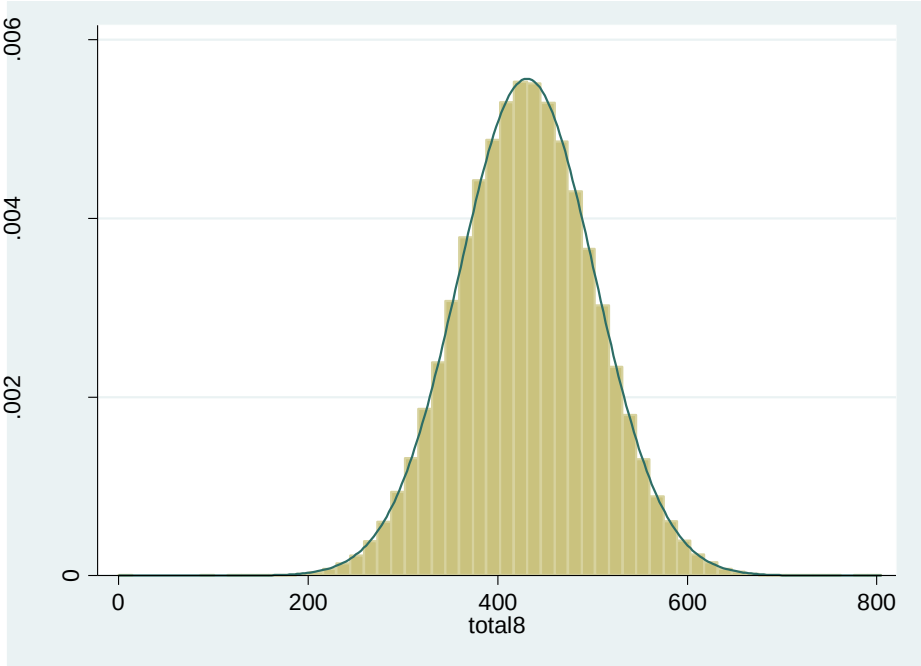

.03
.02
.01
0
0
20
40
60
80
100
math8


.03
.02
.01
0
0
50
100
eng8


.04
.03
.02
.01
0
0
20
40
60
80
100
urdu8


.04
.03
.02
.01
0
0
50
100
isl8


.04
.03
.02
.01
0
0
20
40
60
80
100
sci8


.006
.004
.002
0
0
200
400
600
800
total8

Appendix C – FAS program details

Table 11a – Level wise FAS program schools

Districts	No. of Primary Schools	No. of Middle Schools	No. of Secondary Schools	No. of H.S Schools	Total
Attock	1	2	0	0	**3**
Bahawalnagar	35	142	9	0	**186**
Bahawalpur	82	151	24	1	**258**
Bhakkar	39	7	5	0	**51**
Chakwal	19	17	1	0	**37**
Chiniot	2	12	2	0	**16**
D.G.Khan	17	33	3	0	**53**
Gujrat	18	2	0	0	**20**
Jehlum	0	2	3	0	**5**
Jhang	85	35	6	0	**126**
Khushab	2	21	13	1	**37**
Lahore	27	15	0	1	**43**
Layyah	1	29	10	0	**40**
Lodhran	22	89	7	0	**118**
M.B.Din	1	1	2	0	**4**
Mianwali	20	8	6	0	**34**
Multan	134	20	37	0	**191**
Muzaffargarh	25	160	35	0	**220**
Nankana	2	2	3	0	**7**
Narowal	0	5	5	0	**10**
Okara	2	18	9	0	**29**
Pakpattan	1	17	5	0	**23**
R.Y.Khan	6	16	11	0	**33**
Rajanpur	18	75	14	0	**107**
Rawalpindi	0	2	3	0	**5**
Sargodha	2	14	8	0	**24**
Sheikhupura	0	2	5	0	**7**
Sialkot	13	1	9	0	**23**
Vehari	35	27	7	0	**69**

Note: H.S. schools refers to higher secondary schools.

Table 11b - Phase-wise FAS program schools

Districts	HSS	Phase-I	Phase-II	Phase-III	Phase-IV	Phase-V	Phase-VI	Total
Attock	0	0	0	0	0	0	3	**3**
Bahawalnagar	0	0	14	112	41	19	0	**186**
Bahawalpur	1	10	15	110	86	36	0	**258**
Bhakkar	0	0	11	0	0	0	40	**51**
Chakwal	0	9	16	0	0	0	12	**37**
Chiniot	0	0	0	7	3	1	5	**16**
D.G.Khan	0	0	0	0	0	0	53	**53**
Gujrat	0	0	14	0	0	0	6	**20**
Jehlum	0	0	0	0	0	0	5	**5**
Jhang	0	0	0	30	41	55	0	**126**
Khushab	1	10	19	0	0	0	7	**37**
Lahore	1	7	11	0	0	0	24	**43**
Layyah	0	0	0	0	0	0	40	**40**
Lodhran	0	0	0	42	49	27	0	**118**
M.B.Din	0	0	0	0	0	0	4	**4**
Mianwali	0	0	12	0	0	0	22	**34**
Multan	0	0	0	58	80	53	0	**191**
Muzaffargarh	0	0	1	69	79	71	0	**220**
Nankana	0	0	1	0	0	0	6	**7**
Narowal	0	0	4	0	0	0	6	**10**
Okara	0	0	0	0	0	0	29	**29**
Pakpattan	0	0	0	0	0	0	23	**23**
R.Y.Khan	0	0	0	0	0	0	33	**33**
Rajanpur	0	0	0	32	33	42	0	**107**
Rawalpindi	0	0	0	0	0	0	5	**5**
Sargodha	0	0	0	0	0	0	24	**24**
Sheikhupura	0	2	0	0	0	0	5	**7**
Sialkot	0	6	9	0	0	0	8	**23**
Vehari	0	0	1	0	0	0	68	**69**
TOTAL	**3**	**44**	**128**	**460**	**412**	**304**	**428**	**1779**

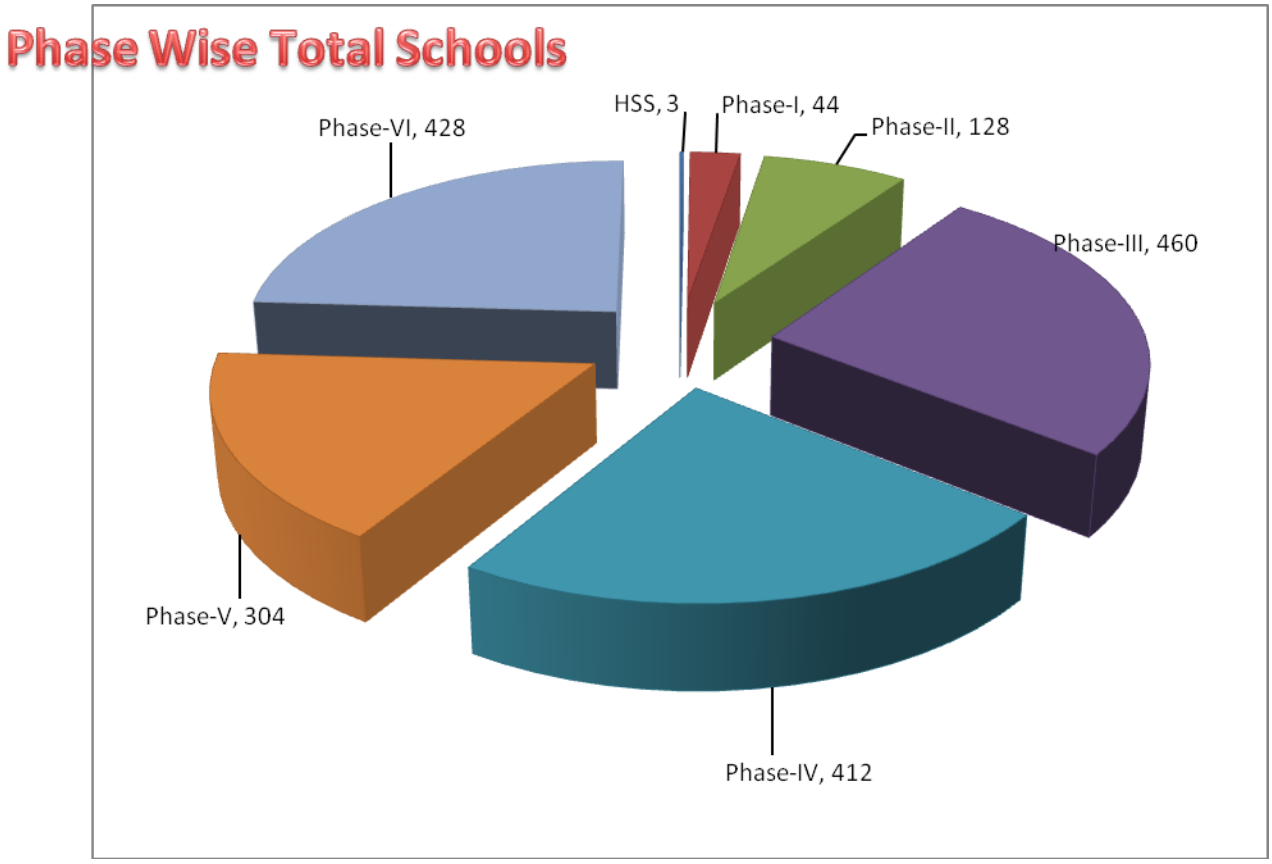
Source: PEF (2011).

Table 11c - District-wise Schools and Enrollment in FAS program schools

Districts	Total Schools	Total Enrollment
Attock	**3**	**1188**
Bahawalnagar	**186**	**81979**
Bahawalpur	**258**	**118639**
Bhakkar	**51**	**21075**
Chakwal	**37**	**17011**
Chiniot	**16**	**7231**
D.G.Khan	**53**	**19492**
Gujrat	**20**	**11107**
Jehlum	**5**	**1952**
Jhang	**126**	**54314**
Khushab	**37**	**19003**
Lahore	**43**	**20841**
Layyah	**40**	**14406**
Lodhran	**118**	**58624**
M.B.Din	**4**	**1298**
Mianwali	**34**	**14232**
Multan	**191**	**99438**
Muzaffargarh	**220**	**108524**
Nankana	**7**	**2338**
Narowal	**10**	**5273**
Okara	**29**	**10778**
Pakpattan	**23**	**9378**
R.Y.Khan	**33**	**11346**
Rajanpur	**107**	**44783**
Rawalpindi	**5**	**2137**
Sargodha	**24**	**8549**
Sheikhupura	**7**	**3693**
Sialkot	**23**	**12624**
Vehari	**69**	**26757**
TOTAL	**1779**	**808010**

Source: PEF (2011).

Figure 5 – Proportion of Schools Phase-Wise



Source: PEF (2011).

Contract between Foundation Assisted Schools Program and Partner Private School

TERMS AND CONDITIONS FOR PARTNERSHIP AGREEMENT

This agreement of partnership is made at Lahore on this _____between Punjab Education Foundation 78-B1, MM Alam Road, Gulberg-III, Lahore (hereinafter called the first party) and _____(hereinafter called the second party) and the terms and conditions set forth herein:-

The parties aforementioned mutually, voluntarily and willingly agree that:-

1. That under the Punjab Education Foundation Act 2004 the executive and managing authority of the Punjab Education Foundation (hereinafter called the Foundation) vests with Board of Directors (BOD) so the BOD shall have the sole authority to take all decisions to run FAS program effectively.
2. The partnership agreement shall continue and would deem to have been extended from year to year basis till terminated by the first party. The partnership agreement may also be terminated by the first party anytime on violation by the second party of any terms and conditions of the agreement.
3. That public money is a sacred trust with the first party and it is the statutory responsibility of the first party to ensure that funds are being utilized for the purposes for which they are provided with. Therefore, in the event that second party violating any of the terms and conditions of this partnership agreement the first party reserves the right to withdraw its financial support with immediate effect without serving prior notice to the second party.
4. That the first party will provide funding/agreed financial assistance to the partner schools on time and assist schools through technical training of its staff for effective running of schools and maintaining the required educational standards. The funding will be disbursed to the recipient schools through Bank of Punjab online branches for transfer of funds.
5. That in case the existing partnership agreement is terminated due to any reason and if the BOD decides to continue FAS program with the second party a new agreement shall be made subject to the terms and conditions, from time to time made and approved by the BOD. That the concerned policy decisions taken in and approved by the BOD in its subsequent meetings regarding the effective running of FAS program shall be duly communicated to the second party and if needed shall be deemed to be added in the partnership agreement.
6. That the second party shall register itself with the District Registration Authority within one year after entering into partnership with the first party and in default thereof the first party may discontinue the provision of financial assistance under this partnership agreement. The administration of the second party is hereby held responsible for ensuring the availability of quality infrastructure, furniture and hygienic, congenial and conducive conditions within 6 months of the date of execution of this partnership agreement.

7. That the second party will display on its main gate or any other conspicuous place a board depicting on the format and text provided by the first party.
8. That the amount as financial assistance to be provided to the second party shall be determined/fixed by the BOD on the basis of per child enrolled per month to cover tuition fee, stationary charges, paper money and allied charges like lab, library, co-curricular activities etc. At the sole discretion of the BOD of the First Party this amount may be increased or decreased due to any consideration.
9. That from the date of execution of this partnership agreement the second party shall not charge any tuition fee from enrolled students in whatsoever form. Notified examination fee by the concerned Board of Intermediate and Secondary Education may, however, be collected from the students against a token of receipt, with the prior approval of the First Party. The first party on receiving complaints against the second party of charging fee, fine or any charges whatsoever without taking the prior permission/consent of the first party, or any other violation of this partnership agreement, the first party reserves the right to cancel the partnership agreement forthwith without giving any prior notice or impose penalty as per judgment.
10. That the first party will administer bi-annual Quality Assurance Tests (QATs) of the students of the second party to assess eligibility for continued financial assistance under this partnership agreement. In addition to biannual QAT the first party reserves the right to conduct surprise/planned QAT with any partner school on receiving of any complaints, misrepresentation of facts, or happening of any event which lead to Force Majure (includes acts of God, war, epidemic, earthquake, floods, insurrection). The second party is required to maintain quality standards by ensuring the students of the school to pass the Quality Assurance Tests (QATs), as per criteria fixed by BOD of PEF, conducted by, or on behalf of, the first party. In case of two consecutive failures of the second party in passing of these QATs, the first party reserves the right to immediately terminate any financial assistance or even terminate the partnership agreement without serving any prior notice to the second party.
11. That the second party must abide by the rules and regulations, timings and schedules, formats and methods prescribed by the first party for maintaining the overall school building, educational environment, campus hygiene and passing of bi-annual QATs. The second party will observe all rules and regulations regarding school timings and holidays, failing which the first party may charge the penalties or what so ever. Provision of infrastructure, furniture, light system ventilation etc will be the responsibility of the second party, failing of which give right to the first party to impose penalties as per its judgment.
12. That in case enrollment data/information furnished by the second party has been proved incorrectly or in case of any other false statement as verified by PEF through its monitoring and evaluation section or concerned staff by conducting physical inspection, inquiry of facts or documentation maintained by the school or based on testimonials of students or teachers of the second party, the first party shall reserve the right to discontinue forthwith any financial assistance or even terminate the partnership agreement without serving any prior notice.
13. That the first party will exercise a no-tolerance policy against overcrowding. No single room may host more than one class at one time. If the second party is reported to be overcrowded or congested the first party will impose heavy penalties upon the second party and/or may cancel this partnership agreement and cease all financial support to the second party forthwith.
14. That the minimum strength of enrolment should not be less than 100 students. The second party must ensure the provision of proper physical infrastructure and all relevant facilities for additional students; the availability of all these facilities will be inspected and approved by a representative of the first party prior to the enrolling of more students by the second party.
15. That the physical infrastructure of school in terms of building, class rooms, toilets, library and laboratories (in case of elementary and secondary schools) must be hygienic, congenial, conducive

and airy according to the standards specified by the first party. Information regarding any changes made in the present building infrastructure shall be communicated to the first party on monthly basis along with the earlier verified report of PEF.

16. That if the enrolment of the second party has increased or decreased during the period of partnership agreement of the last reviewed and verified level of enrolment then financial assistance to the second party will be revised for the subsequent period on the basis of variance in the enrolment subject to the physical verification or following the prescribed procedure by the first party.
17. That the first party may carry out class-wise random inspections to check/verify the veracity of earlier reported enrolment, improvements made in the infrastructure and standard of cleanliness and hygiene at any time without serving the prior notice during the working hours of the school run by the second party. Students, teachers and other school staff may also be interviewed and must be directly accessible to the representatives of the first party even in the absence of the second party or its representatives.
18. That by the 5th day of every month, the second party shall communicate accurate figures of the enrolment of the students, on forms supplied by first party, providing class-wise break-up and gender-wise information of enrolment shall be submitted. In case of late submission of enrolment data, financial assistance will be provided on the basis of the data communicated and recorded in the last available inspection report of the first party.
19. That the second party shall not conduct any after-hours/second-time classes within its premises. The second party shall not conduct tuition academies or any other profit making venture within the premises of the institution declared as under this partnership agreement.
20. That the second party must ensure that the students of all relevant classes appear in the annual tests conducted by the Punjab Examination Commission (PEC) or any other institution recommended by the BOD. The second party will submit whatever information the first party requires with respect to PEC examination including results etc. The second party will be permitted to collect notified fee, from the students, required by the PEC for participation in the said examination.
21. That in case of outstanding performance by the second party in providing quality education, determined on the basis of results of students of examination conducted by PEC and assessed through six monthly Quality Assurance Tests (QATs), administered under the auspices of first party, the Board of Directors of the first party may give awards to the second party and/or its staff. The Board of Directors of the first party shall determine the rules and the criteria for award of such incentives.
22. That this agreement is non-transferable and, therefore, in case of sale of school to a third party this partnership agreement will stand cancelled automatically. In case of any default pertaining to the title of ownership of the school or any relevant dispute/civil litigation, thereof, regarding the second party, that develop before or after entering into this partnership agreement, the first party may cancel the partnership agreement unilaterally without serving the prior notice to the second party.
23. That the second party shall not spend the financial assistance on any other educational institution other than the one named in the partnership agreement. The second party must nominate his/her successor or declare its 'next of kin' at the time of signing of this partnership agreement that in case of the demise or any eventuality making the original signatory incapable to execute partnership agreement, the second party, who is the signatory of the partnership agreement, his/her successor assignee will be deemed to have automatically become a party and shall be bound to observe all the terms and conditions of this partnership agreement.
24. That if any dispute, disagreement, reference or question at anytime arises between the parties during the period of agreement the aggrieved party may refer the matter Executive Committee of the Foundation. The matter shall be referred in writing to the Executive Committee. Aggrieved party shall be given an opportunity of being heard. The decision of the Executive Committee shall be final and binding on both the parties.

25. That this document is executed to provide financial assistance under the scheme of FAS only to the second party on the recommendation and approval of the BOD of the first party. That the partnership agreement shall be terminated by the first party on violation of any stipulation or terms or conditions by the second party of this signed agreement. The first party reserves the right to take any legal action or to initiate proceedings under the concerned law or signed partnership agreement including penalty or cancellation of the partnership agreement in case that it is proved that the second party is malafidely involved in any activity amounting to defame the name and reputation, good will and cause of the first party or depending upon the nature of the violation on the cost of the second party.

IN WITNESS WHEREOF the parties aforementioned have signed this agreement of the partnership.

SECOND PARTY **FIRST PARTY**

Name:

CNIC #:

Witnesses

1_____

2_____

FAS program schools' criteria for choosing partner schools

In terms of candidate selection, according to the PEF website, the criteria for selection of private schools include (PEF, 2010):

1) The private school should have a minimum enrollment of 100 students and maximum of 500 students.

2) Private schools in rural areas and/or urban slums are preferred.

3) Physical infrastructure of schools in terms of building, classrooms, library and laboratories should be hygienic and conducive to learning.

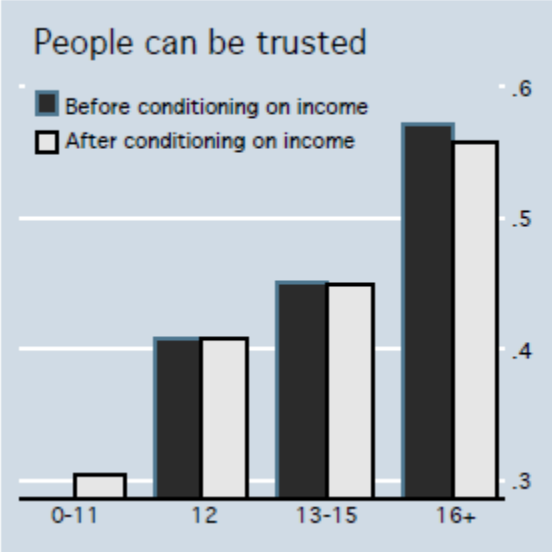
4) The school should have qualified teachers.

5) Students in short listed schools will take a skill-based test in English, Urdu, Science and Mathematics before the school can enter into a partnership with PEF.

6) Girls' schools are preferred.

Appendix D – Background and PPPs in general

Figure 6 - The Relationship between Schooling and Trust (Trust as an example and determinant of social capital and educational attainment).



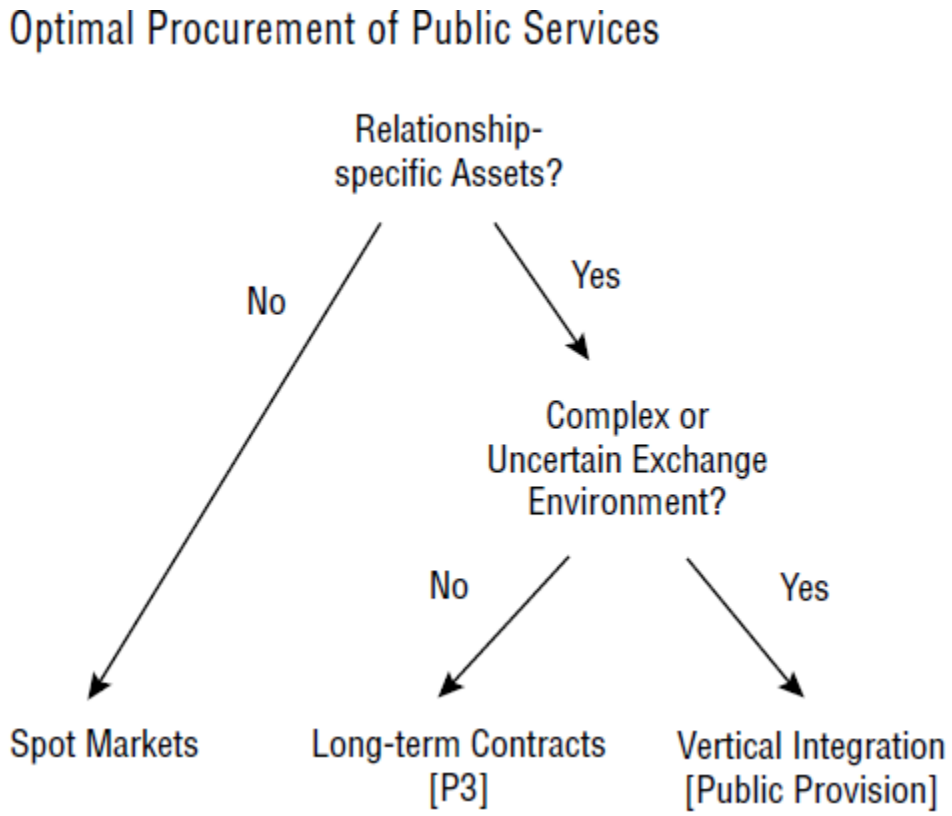
Source: Oreopoulos and Salvanes (2009). The sample includes 25-40 year olds from the 1972-2000 General Social Surveys in the U.S.

Table 12 – Different religious sects in Pakistan.

Name	Doctrinal Affiliation	Headquarters	Date Established
Wafaq-ul-Madaris	Deobandi	Multan	1959
Tanzim-ul-Madaris	Barelwi	Lahore	1960
Wafaq-ul-Madaris Shia	Shia	Lahore	1959
Rabitatul-Madaris-al-Islamia	Jamaat-e-Islami	Lahore	1983
Wafaq-ul-Madaris-al-Salafia	Ahl-e-Hadith	Faisalabad	1955

Source: Offices of the respective madrassa boards, 2010

Figure 7 - Long-term contracts versus vertical integration by the government



Source: Crocker and Masten (1996).

According to Kelman (2002), contracts should be designed keeping the following in mind:

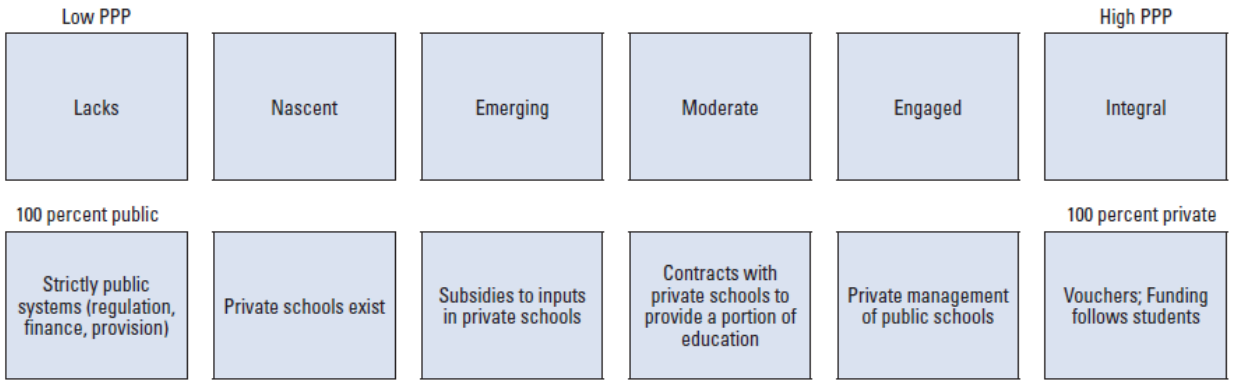
- Candidate selection: services suitable for outsourcing;
- Source selection: sole source, limited competition, or open competition;
- Type of contract: fixed price or cost reimbursement; completion contract (performance contract) or best-effort contract;
- Contract for multiple provision: delivery order, task order, or indefinite-quantity procurement;
- Contract incentives and modifications, and resolution of claims and disputes;
- Criteria for evaluating bids;
- Degree of allowable official discretion;
- Nature and degree of oversight.

Moreover, Kelman (2000) argues that contracting is likely to be better than direct, in-house provision under the following circumstances:

1. the more precisely a task or result can be specified in advance;
2. the more easily performance can be measured and evaluated;
3. the more competition there is among potential providers;
4. the less the activity is core to the agency's mission;
5. the more the demand for service varies over time;
6. the private providers can hire people with the needed skills more easily than government can;
7. the private providers have greater economies of scale in producing the service

Source: From Savas (2000). Steven J. Kelman, "Contracting," in Lester M. Salamon, ed., *The Tools of Government: A Guide to the New Governance* (New York: Oxford University Press, 2002), 282–318.

Figure 8 - Public-private spectrum:



Source: Patrinos et al., 2009.

Table 13 – Forms of PPPs and Education Goals

Contract	**Effect on increasing enrollment**	**Effect on improving education outcomes**	**Effect on reducing education inequality**	**Effect on reducing costs**
Vouchers	Strong: number of students who receive the voucher	Strong: school choice	Strong when targeted	Strong when private sector is more efficient
Subsidies	Strong: use of already built private infrastructure	Moderate: limited by available p laces and quality of service delivered in the private sector	Strong when targeted	Moderate
Private management and operations	Moderate: limited by the supply of private school operators	Moderate: limited by available places in the private sector	Strong when targeted	Moderate
Private finance initiatives	Moderate: Limited by financial constraints	Low	Strong when targeted	Strong

Source: Authors' compilation based on World Bank 2003a, 2006; Harding 2002; Latham 2005; LaRocque and Patrinos 2006, as cited in Patrinos et al., 2009

Table 14 - Vouchers as PPP type – A Cross Country Survey of Primary and Secondary Schooling

Country	**Qualifying Population**	**Coverage**	**Scope of Regulations and Practices**	**Monetary Value of Voucher**
Bangladesh	Females Grades 6-10	Selected localities	Public or private schools, minimum progress and attendance required	From $12 in G6 to $36.25 in G10
Chile	Low income elementary and secondary school attendees	Over one third of total enrollments. All income groups	Receiving schools can also charge fees	Average value in 1991 4.359 pesos
Belize	Elementary and secondary school attendees	75 percent of primary, 50 percent of secondary	Strong government partnership with the churches	n/a
Lesotho	All secondary and primary school attendees	Most schools	Government trains and appoints teachers. Strong partnership with churches	n/a
Colombia	Low income students	Operational in 216 municipalities. Vouchers usable in private schools	Program participation renewable if student performance satisfactory	$143 per year
The Netherlands	All children subject to compulsory education	All municipal areas	State finance of schools for each religion where local demand demonstrated. Secular private schools also state financed	Public and private schools are financed on a completely equal basis
Japan	School children over 15 years old	Public and private high schools	Private schools must submit financial statements to the Foundation for the promotion of private schools	40 percent of the cost in private high schools covered by government – approximately 140 yen per year in the 1980's

Country	Qualifying Population	Coverage	Scope of Regulations and Practices	Monetary Value of Voucher
Canada: Province of Québec	Families patronizing independent schools	Mainly private secondary schools	Public inspection. Teachers must have same qualifications as in public schools. Same curriculum	60 percent of the costs of public schooling (80 percent for schools "in the public interest.")
Canada: Province of Manitoba	Families patronizing independent schools	Private schools	Public inspection	Full time equivalent capitation grants
Canada: Province of Saskatchewan	Families patronizing independent schools	Private schools	Curriculum, teacher qualifications, enrollment	55 percent of public school per capita cost
Canada: Province of Alberta	Families patronizing independent schools	Private schools	Curriculum, teacher qualifications, language requirements	50 percent of public school cost

Source: West (1996). Country wise:

Chile: Winkler and Rounds, 1993; Sweden: OECD, 1994; The Netherlands: OECD, 1994; Japan: Lynn, R., 1986; U.S. Milwaukee: McGroaty, Daniel, 1994; U.S. (Private vouchers): The National Scholarship Center. 1995; Puerto Rico: Tucker, Allyson, and William F. Lauber. 1995; U.K.: UK Education Department, 1992, World Bank, 1995, (b), Flew, Antony, 1995; Poland: Glenn, Charles L., 1995; New Zealand: OECD, 1994; Canada: Easton, Stephen T., 1988; Bangladesh, Belize, Lesotho, Colombia, Guatemala: World Bank sources.

Appendix E – PEC sample exam and Interview Questions

Figure 9 - PEC Sample Math exam matrix

Competency Chart Of Form B (Mathematics)

Content Area	Topic	S.No.	Competency	Uni Structural	Multi Structural	Relational	Q.No. in Form B	Marks of Question	Marks of Topic	Marks %	No. of Items
Numbers & Accounting	Natural Numbers	1	Reading Natural Numbers up to a billion		X		2	1	6	12	6
		2	Writing Natural Numbers up to a billion	X			1	1			
		3	Inter conversion in lacs and millions		X		23	1			
		4	Distinguish between smaller and larger numbers up to a billion		X		3	1			
		5	Writing Roman Symbol up to 50 & 100,500,1000	X			4	1			
		6	Apply operations with numbers up to billion		X		5	1			
	Common Fraction	7	Simplify reducible fraction to irreducible fraction		X		6	1	14	28	9
		8	Rounding off continued fraction		X		7	1			
		9	Inter conversion of common fractions and decimal fractions		X		8	1			
		10	Apply basic operations on fractions		X		9,	1			
		11	Use brackets to give priority to operations	X	X		10,11	2			
		12	Solve word problems involving basic operations	X	X	X	24(a,b,c), 25(a,b,c)	8			
	Unitary Methods	13	Use unitary method in every day context	X			12	1	7	14	6
				X	X		13,14	2			
		14	Solve every day life problems involving direct and inverse proportion	X	X	X	31(I,II,III)	4			
	Average	15	Calculate the average of given numbers	X	X		15	1	4	8	5
		16	Solve every day context problems using averages		XX	X	26(I,II,III)	3			
Geometry	Adjacent, Complementary & Supplementary angles	17	Identify Adjacent, Complementary & Supplementary angles		X		16	1	13	26	10
	Perpendicular and parallel lines	18	Draw perpendicular and parallel lines using set square		XX		27(a,b)	3			
		19	Recognise perpendicular and parallel line	X			18	1			
	Construction of triangles	20	Construct triangle in case two sides and included angle is given		X		28	3			
		21	Construct triangle in case angles and included side is given								
	Kinds of Quadrilateral	22	Recognize Close Figure & Kinds of Quadrilateral	X			17	1			
	Area	23	Find Area of Square & Rectangular region		X		19	1			
		24	Solving word problems involving area of square and rectangle		X		20	1			
	Volume	25	Find Volume of cube, cuboid,cylinder,cone & sphere		X	X	21,22	2			